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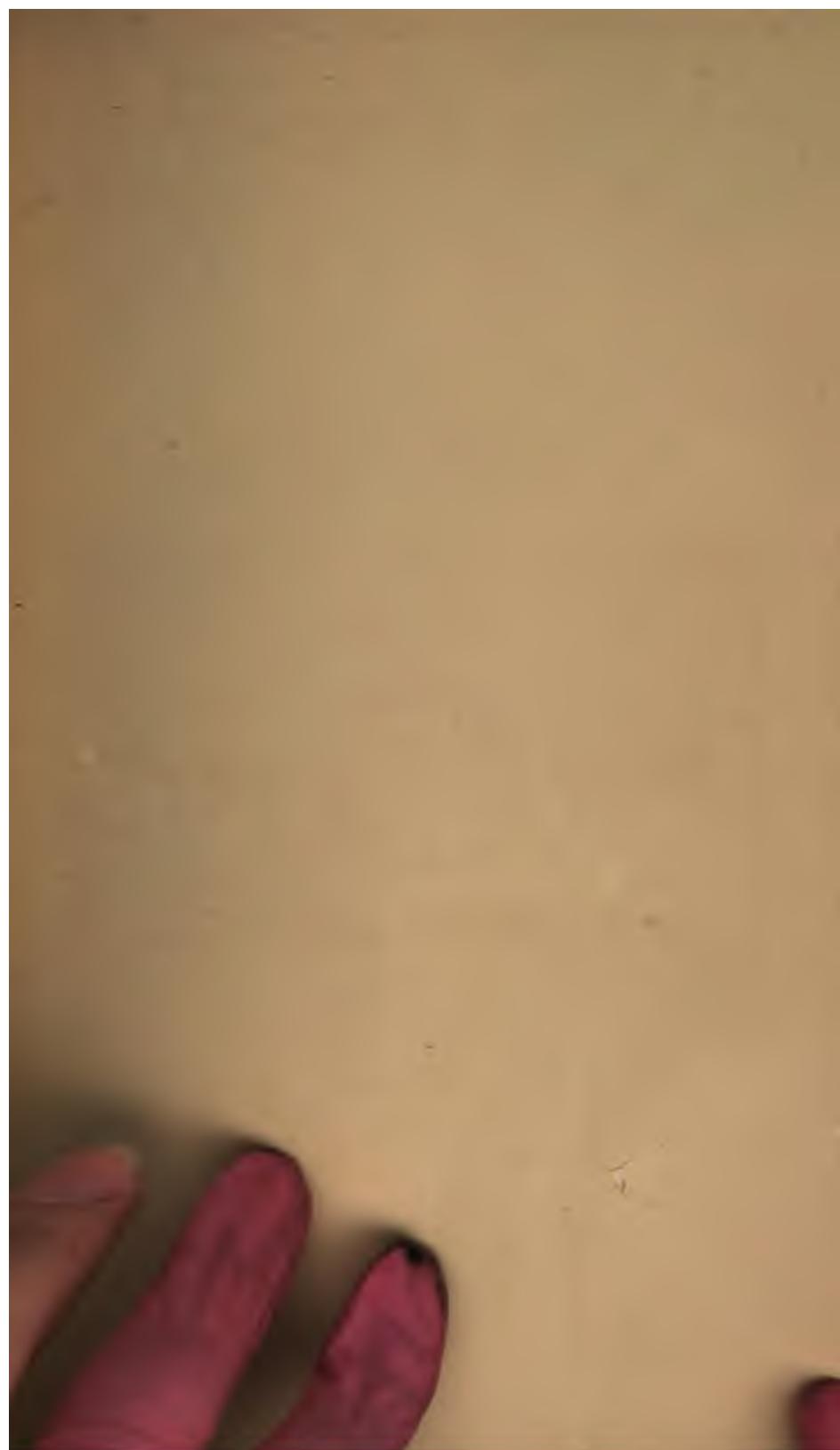


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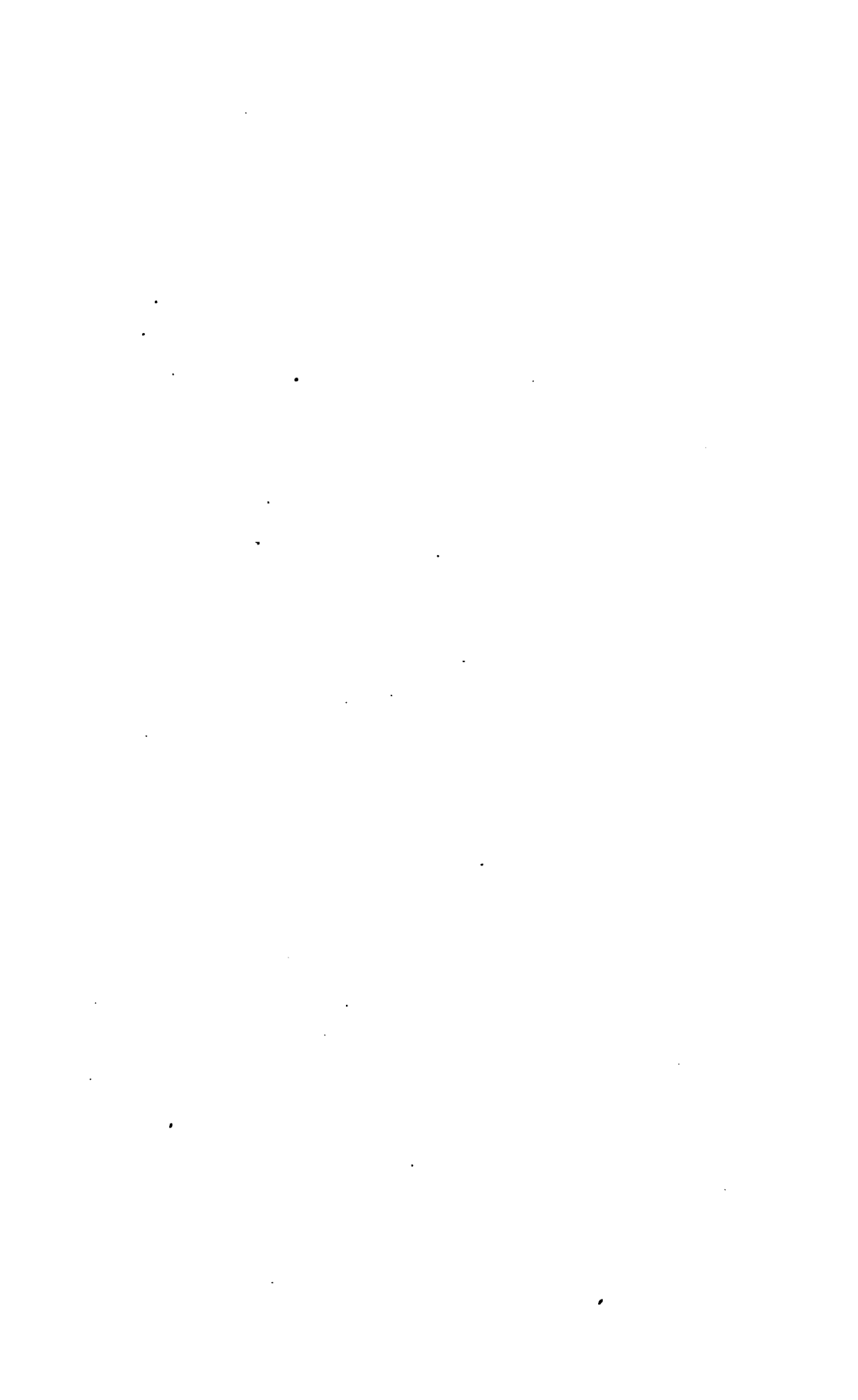
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CUTANEOUS MEDICINE.

THE STUDENT'S BOOK
OF
CUTANEOUS MEDICINE
AND
DISEASES OF THE SKIN.

ERASMUS

BY

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NEW YORK HOSPITAL
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PREFACE.

IN publishing a **STUDENT'S BOOK OF CUTANEOUS MEDICINE AND DISEASES OF THE SKIN**, we believe that we are supplying a want in Medical Literature. Great Britain has many scientific treatises devoted to the subject; some original, the greater part founded on the works of the French or of the Germans; and an abundance of translations from foreign authors; but we have no elementary book that the Student can call his own; no Class-book; no book founded on **BRITISH CUTANEOUS MEDICINE**, that is, upon Cutaneous Diseases such as they occur in this country, and exist amongst us at the present day, and treated upon principles which long experience has shown to be the best suited to the instincts and peculiarities of the British mode of thought, and of the British medical constitution. We have endeavoured to produce such a book, and we have taken as the groundwork of our teachings, the experience of many years conscientiously devoted to the discovery of the soundest views of the subject, and the soundest principles.

The first progress made of late times in Cutaneous Medicine, was that instituted by our countrymen, **WILLAN** and **BATEMAN**; and we are proud to reflect, that the system of Willan has been for many years the standard classification of Diseases of the Skin throughout Europe and America. It is the Linnæan system applied to diseases of the skin; and no higher praise can be accorded to it. But, just as the Linnæan system called into being the system of **Jussieu**, and we are left in doubt which most to admire, Linnæus or **Jussieu**; the Willanean system suggested the construction of a natural classification, similar to that applied by **Jussieu** to the vegetable kingdom. A **NATURAL CLASSIFICATION** is the want of the hour; and a natural classification, if it could be attained, would, without doubt, be an important gain to our science. **Alibert** invented such a classification; **Hardy** has revived it; but we must

confess that neither the classification of Alibert nor that of Hardy is such as to meet with our approval.

In the present work we have framed a classification, founded on the clinical history of diseases of the skin ; we have arranged these diseases into *twenty-two* groups ; and we believe, that for all practical purposes, the arrangement will be found sufficiently simple and comprehensive. Should it be adopted in future years as a classification worthy of being remembered, of being made the basis of study of these diseases, it may, very truly, be represented as a CLINICAL CLASSIFICATION.

We have not left out of view the necessity for the student of being thoroughly acquainted with the skin in health, previously to undertaking the study of its diseases ; and we have preceded our chapters devoted to the twenty-two groups of diseases, by one on the Anatomy and Physiology of the Skin ; and we have followed the chapter on Anatomy and Physiology, by one on the Pathology of the Skin, and the classification of its diseases.

Our aim has been to simplify, to endeavour to restore to General Medicine, a department of much interest and importance, and, by furnishing the Student with a clear view of these diseases, to remove them from the narrow sphere of Specialism to the wider and nobler field of Catholic Medicine.

HENRIETTA STREET, CAVENDISH SQUARE,

November 1, 1864.

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ARRANGEMENT OF SUBJECT.

THE ARRANGEMENT OF SUBJECT adopted in this book is termed CLINICAL, in consequence of being founded on the most salient and striking characters of each disease, whether those characters be in their nature pathological, etiological, or physiological. Taking this as our basis of arrangement, we are enabled to classify all the diseases of the Skin at present known into *twenty-two* groups, as follows :

1. ECZEMATOUS AFFECTIONS,
2. ERYTHEMATOUS AFFECTIONS,
3. BULLOUS AFFECTIONS,
4. FURUNCULAR AFFECTIONS,
5. NERVOUS AFFECTIONS,
6. VASCULAR AFFECTIONS,
7. HÆMIC AFFECTIONS,
8. DEVELOPMENTAL AND NUTRITIVE AFFECTIONS,
9. HYPERTROPHIC AND ATROPHIC AFFECTIONS,
10. ALPHOUS AFFECTIONS,
11. STRUMOUS AFFECTIONS,
12. CARCINOMATOUS AFFECTIONS,
13. ZYMOTIC AFFECTIONS,
14. SYPHILITIC AFFECTIONS,
15. LEPROUS AFFECTIONS,
16. PIGMENTARY AFFECTIONS,
17. PHYTODERMIC AFFECTIONS,
18. UNGUAL AFFECTIONS,
19. DISEASES OF THE HAIR SYSTEM,
20. DISEASES OF THE SEBIPAROUS SYSTEM,
21. DISEASES OF THE SUDORIPAROUS SYSTEM,
22. TRAUMATIC AFFECTIONS.

If we examine this classification a little more closely, we shall find that certain of these groups are composed of **DISEASES OF THE GENERAL STRUCTURE OF THE DERMA**; for example,—

1. Eczematous affections,
2. Erythematous affections,
3. Bullous affections,
4. Furuncular affections.

SECONDLY, there follows a group of **DISEASES OF THE SPECIAL STRUCTURE OF THE DERMA**, taking in the nerves, the vessels, and the contents of the vessels; thus,—

5. Nervous affections,
6. Vascular affections,
7. Hæmic affections.

A THIRD GROUP comprehends the morbid changes involved in the development, nutrition, and growth of the derma; namely, **DISEASES OF DEVELOPMENT, NUTRITION, AND GROWTH**, as follows:

8. Developmental and nutritive affections,
9. Hypertrophic and atrophic affections.

A FOURTH GROUP is founded on the presence of an existing disposition or tendency to the particular disease; in a word, *diathesis*; the **DIATHETIC DISEASES** being,—

10. Alphous affections,
11. Strumous affections,
12. Carcinomatous affections.

A FIFTH GROUP is founded on the dependence of the disease upon a blood-poison; **DISEASES RESULTING FROM BLOOD-POISONS**; and the members of that group may be stated as follows:—

13. Zymotic affections,
14. Syphilitic affections,
15. Leprous affections.

A SIXTH GROUP is composed of DISEASES OF THE EPIDERMIS ;
for example :—

16. Pigmentary affections,
17. Phytodermic affections,
18. Ungual affections.

A SEVENTH GROUP includes the DISEASES OF THE FOLLICLES of
the skin and their dependencies, namely :—

19. Diseases of the hair system,
20. Diseases of the sebiparous system,
21. Diseases of the sudoriparous system.

While as an EIGHTH GROUP, but one very indispensable, there
remain only DISEASES INDUCED BY INJURY, namely :—

22. Traumatic affections.

Thus it may be shown that, although the individual groups are
numerous, they admit of being collected under *eight* heads, as
follows :—

1. Diseases of the general structure of the derma,
2. Diseases of the special structure of the derma,
3. Diseases of development, nutrition, and growth,
4. Diseases of diathesis,
5. Diseases resulting from blood-poison,
6. Diseases of the epidermis,
7. Diseases of the follicular apparatus,
8. Diseases induced by injury.

And the eight groups might, upon a physiological basis, be
further reduced to half that number, as follows :—

1. Dermal affections,
2. Epidermal affections,
3. Follicular affections,
4. Traumatic affections.

The dermal affections, including,—

- a.* Diseases of general structure,
- b.* Diseases of special structure,
- c.* Diseases of function,
- d.* Diseases of diathesis,
- e.* Diseases of blood-poisoning.

It may be objected critically that there is a want of unity in the CLINICAL CLASSIFICATION ; but as unity of arrangement of cutaneous diseases is neither possible nor practical, the sooner that objection be waived the better ; and the classification is none the worse in our opinion because *four* of the eight groups are founded on a physiological, *three* on an etiological, and *one* on a pathological basis. In the class-room or by the bedside we believe that the clinical classification will not be found wanting in its adaptability to the wants of the student and of the practitioner.

THE STUDENT'S BOOK OF CUTANEOUS MEDICINE.

CHAPTER I.

ANATOMY AND PHYSIOLOGY OF THE SKIN.

THE SKIN is the external surface-membrane of the body, to which it serves as a covering or integument, and being *common* to the whole body, is sometimes called the common integument. It is firm, pliant, and elastic, adapting itself naturally to all the movements of the trunk and members, and resisting pressure and injury coming from without. Hippocrates regarded it not only as an investing and a protective covering, but also as a ligament serving to bind together the body and limbs; and Plato, pursuing the same idea, compares it in its operation to a fisherman's net.

If we follow the skin from point to point, over the whole surface of the body, we shall find it to present some variety of character and appearance. On the head it is smooth and pale, and spotted with the numerous openings or pores which give passage to the hair. On the face it is coarse in texture, furnished with hair in certain situations, more vascular than elsewhere; and at the borders of the eyelids, of the nares, and of the mouth, it exhibits the transition of the external surface-membrane into the internal surface-membrane, or mucous membrane. On the back of the neck and of the trunk, and on the outer side of the limbs, it is remarkable for its thickness and density, as compared with the front of the neck and body, and the inner side and flexures of the limbs. In the former situation it is more or less smooth; in the latter, and particularly at the joints, it is marked by folds and wrinkles, which represent the lines of motion of

the skin. In the flexures of the joints, as of the armpits, the elbows, the wrists, the groins, the ham, the fingers and toes, and in the interdigital spaces, the integument is thin, and deeply marked by the lines of motion; while on the convexities of the joints the skin is thick and dense, and also strongly marked with the lines of motion. In certain parts of the trunk, as upon the shoulders, on the breast, in the armpits, on the mons pubis, on the scrotum, and on the perineum, there is hair, more strongly developed in the male than in the female. Certain parts of the skin, as of the scalp, the chin, and the pubes, are remarkable for the accumulation of subcutaneous fat; while in other parts, as of the eyelids, the penis, and the scrotum, the fat is altogether wanting. Finally, a striking modification of the skin, adapted to resistance and protection, is met with in the palm of the hand, the sole of the foot, and the ungual extremities of the fingers and toes; in the latter situation constituting the nails.

In STRUCTURE, the skin presents two layers,—the derma, or true skin (*cutis vera*, *corium*), and the epidermis, or scarf-skin, or cuticle. The derma is connected with the parts underneath by means of cellular or areolar tissue. This is its deep surface; while, by its superficial surface, it is in close contact with the epidermis. The connection of the deep surface of the derma with the parts beneath is, in some situations, dense and close, as on the cranium, on the nose and ear, on the upper lip and chin, on the pubes and perineum. In other situations it is remarkable for its looseness, as on the eyelids, the penis and scrotum, and the convexities of joints. Where the adhesion is close, the *areæ* of the subcutaneous tissue are small, and filled with fat; where it is loose, the *areæ* are large, and moistened by a serous fluid, which, under slight irritation, is apt to accumulate and give rise to *cedema*. The presence of loose cellular tissue, as a connecting medium of the derma, permits of a greater freedom of motion between the skin and the parts beneath, as occurs at the elbows and knees. Daniel Turner* quotes a curious case of looseness of the integument, which, as it may serve to impress

* Daniel Turner was the author of a curious and interesting volume, entitled "A Treatise of Diseases incident to the Skin," published in 1712. As an old English author we have reason to be proud of his work; and we may remember him, moreover, by the association of his name with a very valuable remedy in cutaneous medicine,—namely, Turner's cerate, at present known as the *ceratum calaminæ*.

upon the mind of the student the physiological fact, we will here transcribe:—

“Of the wonderful dilatability of this part I have heard nothing that comes up to that in the young Spaniard Meekrin takes notice of, who, in the hospital at Amsterdam, showed himself to Van Horn, Silvius, Piso, and other learned physicians, taking up with his left hand the skin of his right shoulder and pap, and bringing the same up to his mouth. Again, he would draw the skin of his chin down to his breast, like a beard, and presently put it upwards to the top of his head, hiding both his eyes therewith. After which, the same would return, orderly and equally, to its proper place, lying smooth, as in any other person. After the same manner, the skin of the right knee and leg he would pull, either upwards or downwards, for half a yard's length; whilst—which was yet more remarkable—the skin of his left side would not admit of any such expansion.”

The DERMA is composed chiefly of white fibrous tissue, which, in its deepest part, forms a strong network, with oval or circular meshes; the strands or fasciculi of the network being of about half the breadth of the areæ. In proceeding outwards, we find that the network becomes finer, both in respect of the fasciculi and of the meshes; and, as we approach the surface, assumes the character of a fine but dense spongy tissue. The large meshes of the under surface of the derma are filled with fatty tissue, and give passage to the blood-vessels which supply the surface of the skin, and also to the lymphatic vessels and cutaneous nerves; and the finer areæ of the superficial portion support the ultimate ramifications of the vessels and nerves, together with the capillary and nervous plexuses.

Looking to the constituents of its structure, the derma is a compound tissue, consisting of a framework of white fibrous tissue, with which muscular tissue, and yellow elastic tissue, are intermingled; and supporting and maintaining in its areolar spaces, fatty tissue, together with arteries, veins, capillary vessels, lymphatics, nerves, and, as we shall see further on, hair-follicles and glands. The average thickness of the derma is half a line; on the back of the trunk it measures in depth about three-fourths of a line; while on the heel the measurement is more than a line, and sometimes as much as a line and a half.

Viewing the two surfaces of the derma,—the superficial and

the deep, there appears a very manifest difference between them; the latter a coarse and firm network of white fasciculi and large open spaces, with a scanty supply of vessels and nerves; the former a fine spongy tissue, seeming to be made up almost wholly of capillary vessels and minute nerves, and bristling on the surface with minute, semi-transparent, finger-like papillæ. This difference between its deeper and its superficial part has caused a distinction to be made between them, which is expressed by the terms *pars reticularis* and *pars papillaris*, or papillary layer. The distinction is arbitrary; there is no line of division such as would constitute different layers. In structure the *pars reticularis* may be said to merge imperceptibly into the *pars papillaris*, and it is only on the actual surface that the papillary element becomes apparent.

As we ascend into the atmosphere, which is, as it were, the derma of the earth, we find it, though dense below, becoming more and more rarefied as we rise to the superficial regions; so is it also with the derma of the body. Composed of coarse tissues below, these tissues become finer and finer in the upper stratum, until in the most superficial of all we find, as the chief element, an imperfect areolar tissue, of the simplest composition; and finally, on the actual surface, a thin, transparent, varnish-like lamella, an organic membrane without structure of any kind, —the boundary, or limitary, or basement membrane. Elaboration and structure seem to be exhausted; and a structureless formative element is all that remains to finish the work.

The PAPILLARY LAYER of the derma, or *pars papillaris*, is developed on its surface into minute papillæ, some of which are simple, and others compound. The former are, some cylindrical, some conical, and some clavate and slightly flattened, while the compound papillæ divide at the summit into two or three, and sometimes four or five simple papillæ, and form a kind of tuft. In structure, a papilla is composed of an imperfectly developed areolar tissue (partly homogeneous and nucleated, and partly fibrillated), surrounded and inclosed by the structureless limitary lamella, and contains in its centre either a capillary loop or a nerve-fibre; in the former case constituting a vascular papilla, in the latter a nervous papilla. We are thus made aware of the existence of two kinds of papillæ; one intended for secretion, the other for sensation: and the presence of a capillary loop and a

nervous fibril in the same papilla is an exceptional occurrence, and would seem, when it happens, to result from the accidental fusion of two papillæ of opposite kinds. The nervous papilla is further distinguished by the presence in its centre of an oval or fir-cone-shaped body, called by Wagner corpusculum tactûs, and by Kölliker, from its position in the axis of the papilla, axile corpuscle; and Huxley has shown that this conical mass is a bulbous development of the termination of the neurilemma, in and upon which the nerve-fibre, after splitting up into several ultimate fibrils, is seen to end.

On the general surface of the body, the papillæ are disposed irregularly, and have a considerable interval between them. On certain parts, as on the nipple, the glans penis, glans clitoridis, and labia minora, they are more numerous, and are assembled more closely; while on the palm of the hand, the sole of the foot, and the bed of the nail, they are most abundant, and are collected into linear groups, which give the appearance of the fine lines characteristic of those surfaces. Weber estimated that in a square line of the palm of the hand there were 81 compound papillæ, and between 150 and 200 simple ones. The papillæ differ also in size; being short on the surface generally, longer on the palm and sole, and on the nipple, where they measure from $\frac{1}{16}$ to $\frac{1}{8}$ of a line; and longest on the matrix of the nail, where they reach $\frac{1}{4}$ of a line, and on the labia majora. The longest papillæ are one-half or two-thirds longer than the breadth of their base; whereas the shorter ones are as broad as, and in some instances broader than, their length.

Yellow elastic tissue is mingled in considerable quantity with white fibrous tissue in the structure of the derma. It forms a network by the interlacement of its fibres, and is met with even in the papillæ. Smooth or unstriped muscular fibre also forms an abundant element of its structure, in certain parts constituting a muscular layer of considerable thickness, as in the instance of the dartos of the scrotum, in the areola of the nipple, and around the nipple itself; and in the superficial portion of the derma it is collected into minute fasciculi, the muscles of the hair-follicles, arrectores pili (Eylandt), which arise in the upper stratum of the corium, immediately beneath the limitary lamella, and proceed obliquely inwards to the follicles, into the outer layer of which they are inserted, just below the sebiparous gland.

Dr. Lister has shown that the *arrector pili* is situated on the sloping side of the hair-follicle, and is therefore placed in the best position for protruding and erecting the hair. The presence of muscular structure in the corium explains to us the intrinsic movements of the skin; the erection of the pores in *cutis anserina*; the contractile action of the scrotum and *areola mammæ*; the erection of the nipple; the hard bleached tubercles and wheals of *urticaria*, and probably, the crawling and creeping sensations experienced in the skin. The term *spasmus periphericus* is not inaptly applied to this action.

The EPIDERMIS, or CUTICLE, lies in contact with the limitary surface of the derma, following all its irregularities, forming hollows for the reception of the papillæ, descending into the hair-follicles and sudoriparous and sebiparous glands, and lining them throughout under the name of epithelium. Along the edges of the eyelids, at the margin of the apertures of the nares and mouth, and at the border of the external apertures of the meatus urinarius, the vulva, and the anus, the epidermis is continuous with the epithelium of the mucous membrane.

The epidermis is a dense, horny, but flexible layer, secreted by the derma, and deposited upon it as a defensive covering, screening it from violence by its toughness, and checking the evaporation of the fluids of the derma by its density. It varies considerably in thickness; being thin on the eyelids, on the penis and scrotum, on the back of the hands and feet, in the flexures of the joints, in the interdigital spaces, on the scalp, on the front and sides of the trunk, on the front and inside of the arms, and on the back and inside of lower extremities; thick, on the back of the trunk and upper extremities and front of the legs, and thickest of all on the palm of the hands and sole of the feet; while, at the extremities of the fingers and toes, it is so far modified in thickness and in density as to constitute the nails.

As the derma is arbitrarily divided into a *pars reticularis* and *pars papillaris*, so, also, is the epidermis divided into a *pars cornea*, or horny portion, and a *pars mucosa*, or soft portion, the *rete mucosum*. The *rete mucosum* is the deep and most recently formed layer of the epidermis, that which lies in contact with the limitary layer of the corium, which is in course of development and elaboration, and, consequently, the immature part; while the horny layer is the fully-developed and mature portion

of the epidermis, and becomes more and more dense and horny as it approaches the surface. The division of the two portions is purely arbitrary; the deepest two or three layers being regarded as rete mucosum, while the superimposed more numerous and condensed layers constitute the epidermis proper.

In structure, the epidermis is composed of cells—of nucleated cells—which, in the rete mucosum, are polygonal in form, about $\frac{1}{100}$ of an inch in diameter, contain a large and well defined nucleus, cell-contents, and pigment-granules, and are surrounded by a thin and imperfect cell-membrane; but which, in the horny portion, are transformed into flattened scales about four times larger than the mucous cells ($\frac{1}{100}$ of an inch), the nucleus of the scales having become invisible, from transparency, and the pigment-granules pale from chemical alteration; the chief constituent of the whilome cell being the cell-membrane, now converted, by compression and evaporation, into a thin and horny scale. The changes accompanying the maturity of the cell, and the conversion of the mucous cell into a horny lamella or scale, take place immediately above the rete mucosum. The transformation is completed long before the mid-thickness of the epidermis is reached, and, as we perceive, the change is not simply one of growth, but also of chemical transformation and metamorphosis. The cuticle is not produced as a horny albuminous membrane, but becomes so as the result of nutrition and development.

The constant formation and growth of the epidermis, by means of the rete mucosum, is the contrivance by which a uniform thickness of the cuticle is maintained. This layer is continually undergoing wear and destruction at the surface, and the loss is as continually compensated by the regular process of formation taking place underneath. Where the formative process is most active, there the greatest thickness of epidermis is attained, as on the palm of the hands and sole of the feet. In these situations the papillæ are most abundant, and the relation subsisting between the papillæ and the cuticle is shown by the small ridges which represent the rows of papillæ which clothe the surface. The removal of the superficial layers of the epidermis is also favoured by the construction of the tissue,—namely, of minute scales, which, as soon as they become loosened, fall away from the surface in the form of a fine dust; and, when

their connections are softened by water, are washed away with every ablution.

The rete mucosum has another claim to our interest, in being the seat of colour of the skin,—of that colour which distinguishes the races of mankind, and has its extremes in the European and the Ethiopian. The colouring matter, or pigment, consists of minute granules, which are identical in appearance with other granules constituting the chief element of the epidermic cell, and differ from the latter only in possessing an amber or reddish-brown colour, and, possibly, a different chemical composition. These granules, taken separately, are globular in form, and have a diameter of $\frac{1}{1000}$ of an inch. They are collected in greatest number around the nucleus, and are intermingled with paler granules in the cavity of the cell. The depth of colour which they occasion is due to their aggregation; for alone, their tint of colour is very slight, even in the rete mucosum of the negro skin.

As the rete mucosum is merely the young epidermis, and as it is quite evident that the epidermis is much less deeply tinted than the rete mucosum, and, in the negro, is almost white as compared with the latter, we are led to infer, as is probably the fact, that the pigment-granules undergo some chemical alteration or metamorphosis in the progress of development of the epidermic cell, which destroys the colouring principle, and that the development of the cell takes place in some measure at the expense of this organic element. But there is a further explanation of the whiteness of the epidermis,—namely, in the large production of albumen, which forms the chief bulk of the epidermic scale, and which would tend still further to subdue the colour of any pigment that might remain in the desiccated scale.

A simple inspection of the epidermis shows another peculiarity of much interest,—namely, the delineation of the surface by a number of lines. These lines are furrows, and a part of the apparatus of motion of the skin, consisting of coarser lines, corresponding with the movements of the joints, and finer lines, corresponding with the intrinsic movements of the skin. The lines of motion are transverse and divergent on the flexures, and transverse and convergent on the convex side of the joints, and leave between them triangular and polygonal-shaped areas; those on the side of the flexures being narrow and elongated,

and those on the convexities being broader and shorter. The lines of motion of the skin itself originate at the apertures of the hair-follicles and glands,—the pores, and radiate as from a centre, for the most part impinging upon other pores, and sometimes on other radiating lines. From the larger pores there proceed from six to ten radiating lines, which usually run to adjoining pores, and form a number of triangular areas; and within these areas are smaller pores, with an equal number of finer lines, forming smaller areas. On the shoulder of a child five years of age we counted, in a square inch of skin, sixty large and six hundred small pores. The radiating lines from these pores were arranged in the manner just described, and had the appearance of a delicate mosaic pattern. The large pores were the centres of as many polygonal wheels, with large triangular areas; and within these areas were arranged the smaller wheels and smaller triangular spaces. The pore is therefore a centre, to which the apices of six or eight triangles converge, and the drawing together of these points serves to produce erection of the pore. On the scalp, the lines of motion form curves between the hairs, and the areas are elliptical in figure.

The NAILS are a modification of the epidermis adapted to the special purpose of protecting the extremities of the fingers and toes. They are situated over the expanded ends of the last phalanges, bedded upon the corium, and overlapped at their base and at the sides by a fold of the skin, constituting the lateral and posterior wall of the nail. The nail is convex on the outer surface and concave beneath, and has two extremities,—one free; the other, the *root* of the nail, being overlapped by the posterior wall to the extent of about two lines. The furrow or follicle which is so formed is the *vallecula unguis*.

On a closer inspection, the nail presents some diversity of colour; it is pale towards the root, the pale portion being bounded in front by a semilunar line, and thence called *lunula*. It is pink throughout the rest of its extent, excepting at the free extremity, where it is detached from the corium. Moreover, the nail is marked by longitudinal lines, some of which are pale and others pink: the former correspond with horny longitudinal laminae situated on its under surface; the latter with plaits of the corium interposed between the horny laminae.

When the nail is detached, the surface of the corium upon

which it lies embedded—the *matrix* of the nail—is brought into view. The matrix is continuous at the sides with the corium of the lateral walls of the nail, and at the bottom of the vallecule with the surface of the posterior wall. The whole of this surface is highly vascular; that of the posterior wall is smooth, as is also a narrow strip at the line of separation of the free extremity of the nail; but the rest of the matrix is clothed with ridges and lamellated plaits or folds of the corium. At the bottom of the vallecule are several transverse ridges corresponding with the border of the root of the nail; and these ridges are studded with papillæ of considerable size. The lunula is furnished with longitudinal ridges, and beyond the semilunar line the ridges of the lunula expand into the longitudinal plaits or folds of the body of the nail. These longitudinal plaits are deepest in the middle, and shallower on each side and towards the free extremity of the nail, and in the latter situation are broken up into irregularly-formed and elongated papillæ; finally, beyond the broken ends of the lamellæ is situated the smooth strip which forms a transition to the derma of the tip of the finger or toe. The longitudinal lamellæ are studded with papillæ along their free borders, and these vascular fringes are the cause of the pink longitudinal lines seen through the transparent nail; while the general vascularity of the lamellæ produces the deep tint of pink which distinguishes the body of the nail from that which covers the lunula. The horny nail is continuous at each side with the epidermis of the lateral wall; at the free extremity, the under surface of the nail is blended with the epidermis, which seems, as it were, to bifurcate at this point; and along the edge of the posterior wall, the epidermis becomes attenuated, and is spread out and lost on the surface of the nail. The nail is thicker in the middle, where the vascular lamellæ of the corium are the largest, than at the sides, where they are smaller, or over the lunula, where they are absent altogether; the thickness of the nail being proportionate to the extent and activity of the vascular surface. The root of the nail is thin and soft, while the free extremity is three times thicker than the root, and has a tendency to follow in its growth the curve of the tip of the finger.

The growth of the nail is effected by the synchronous formation of cells upon its whole under surface, and along the border

of the root. The cells added to its lower surface give thickness to the nail; those deposited along the free border of its root press it forwards and give it length; and the formative action constantly in operation produces the movement forward which constitutes what is generally understood by the growth of the nails. If, for one moment, we reflect upon this process, we shall see the reason of the occasional abnormal growth of the nail, sometimes in length, but more frequently in thickness.

There are few structures in anatomy more interesting than those concerned in the adhesion of the nail to its matrix, an adhesion so firm, and yet so slight as to permit of the movement of the entire nail forwards on its bed, and by the agency of a power apparently so unequal to such an effort,—a row of minute cells, deriving their strength simply from their nutritive power and growth. We remember in our student days, wondering over the results of a similar power occurring in the vegetable world. A huge millstone lay upon the ground near the edge of a copse; a young and slender sapling, like a playful child, raised its feathery head through the hole in the middle of the stone; a few years slid by, and then the sapling was a sturdy plant that had grown to the full size of the hole in the millstone; it was no longer play; the plant was inconvenienced by the pressure of the heavy mass. What would it do? A few more years saw the remarkable issue; the plant upheaved the massive stone from the earth and bore it, as it were upon its shoulders, into the air: such is the gigantic force of nutritive power, or rather of nutritive life. The adhesion of the nail to the matrix is mainly effected by the intervention of the horny laminae of the nail and vascular plaits of the corium; they lie side by side in mutual embrace; the horny laminae, sixty or seventy in number, are secreted by the plaits of the corium, and grow by the superaddition of new cells generated by the vascular structure. When left to themselves, the nails attain a certain length, and then, it is said, they cease to grow, and, like the hair, are probably shed; but the habit of paring them, common in European countries, maintains a perpetual growth.

Viewed by the side of the epidermis, with which it is analogous, the nail will be seen to be harder, denser, whiter, less flexible, and more transparent, more nearly approaching in its characters to horn, and in fact presenting a higher condition

of development. Like epidermis, it consists of a mucous and a horny layer; the mucous layer being composed of nucleated cells containing pigment, and in their progress towards the surface being converted into scales. The scales, however, are denser and thicker, and the nucleus firmer and larger, so as to be visible in the perfected scale, while in those of the epidermis it is with difficulty discoverable. A section of the nail shows a laminated texture like that of the epidermis, but more transparent and dense, together with pigment-granules which are commonly arranged in streaks. There is a difference also in regard to chemical composition; the greater density of nail being due to the presence of a larger proportion of phosphate of lime. Thus it would appear, that in proportion to the energy of nutritive metamorphosis, the cell of the mucous layer is altered in its nature and composition, and is changed from a soft opaque mass, consisting of nucleus, pigment-granules, and embryonic covering, into a dense, transparent, colourless scale, without pigment or visible nucleus; in other words, that the opaque matter, the pigment matter, and the nuclear matter, are spent and exhausted in the elaboration and perfection of the horny albuminous scale.

A French physician, Dr. Beau, has made some interesting observations on the rate of growth of the nail, having reference to its relation with the duration of illness. He finds that the nails of the hands grow four times as fast as those of the feet, the former increasing in length at the rate of one millimetre ($\frac{1}{4}$ of a line) a week; the latter requiring four weeks for the same amount of growth. Then, assuming the thumb nail to measure from root to free extremity eight lines, or twenty millimetres, it would take twenty weeks, or five months, to attain its complete growth; while the nail of the great toe, measuring nine lines and a half, or twenty-four millimetres, would require for complete growth ninety-six weeks, or very nearly two years. Next, Dr. Beau remarks, that during illness, although growth in length continues as usual, the material of growth is furnished less actively, and, consequently, the nail formed during this period will be thinner than during the period of health; and the deficiency of horny matter may be distinguished on the surface of the nail in the form of a transverse groove. If the invasion of the illness be sudden, the anterior wall of the groove will be abrupt, and *vice*

versâ; and if the return to health be rapid or gradual, the posterior border of the groove will present a corresponding incline. On these data, Dr. Beau suggests the possibility of determining the period of occurrence of an illness, and also its duration. For example, a groove crossing the thumb nail transversely, its anterior border measuring eight millimetres from the extremity of the root, or five from the margin of the posterior wall, would indicate an illness that commenced eight weeks before; and the breadth of the groove being two millimetres, the illness will have existed for two weeks. After five months, the groove will have become obliterated, and the thumb nail no longer an index of the malady. Then, however, the nail of the great toe may be appealed to, and will continue to be a guide for ninety-six weeks. At five months the groove has advanced only five millimetres from the edge of the root, and is just becoming apparent beyond the margin of the posterior wall, while the groove itself is only half a millimetre in breadth. Dr. Beau prefers the thumb nail and great toe nail for this observation, because the appearances are more marked in them than in the rest of the nails.

The development of the nail is first apparent at the completion of the third month of embryonic life. At this period the seat of the future nail is covered by ordinary epidermis, and the first preparations for the nail are shown in the gradual elevation of the boundary-wall of the matrix. A month later there exists a thin horny plate, adherent to the matrix, and covered by the epidermis. This plate progressively increases in thickness during the fifth and sixth months, and during the seventh month moves forward in length. At the sixth or seventh month after birth the foetal nail is shed, and a new permanent one takes its place.

PORES AND FOLLICLES.—The skin is perforated in every part of its surface by numberless openings, which are called *pores*. The pores are the openings of cylindrical tubes which penetrate for a certain depth into the derma, and sometimes extend beyond its limits; and these tubes taken collectively present a surface organized like that of the skin and of an equal and possibly superior extent. We may, therefore, look upon the skin as offering for our study two surfaces,—an apparent and external surface, and a concealed or follicular surface. The cylindrical tubes are the *follicles* of the skin, and they are divisible into

three groups,—hair-follicles, sebiparous follicles and glands, and sudoriparous glands.

These three groups of tubules have a similar organization; they are highly vascular, have a limitary surface-layer like that of the external superficies of the corium, and are lined by a structure analogous to the epidermis; namely, the epithelium. Where they are prolonged deeply, beyond the limits of the reticular portion of the corium, they are followed to their termination by a vascular plexus, by an external fibrous membrane derived from the corium, and are equally lined within by epithelium. Moreover, the hair-follicles are provided with minute muscles, which possess the power of erecting the hairs and protruding the summit of the follicles, and thus of giving rise to that appearance which is termed *cutis anserina*, or goose-skin.

The hair-follicle is a simple cylinder, traversing the skin obliquely, and terminating sometimes in the substance of the corium, and sometimes, after piercing the latter, in the subcutaneous cellular tissue, surrounded by adipose cells. From the bottom or fundus of the follicle a papilla arises, upon which the hair is formed, while the circumference of the hair is moulded by the inner wall of the follicle. The sudoriparous follicle is also a simple cylinder, more slender than the hair-follicle, but longer, also penetrating the epidermis and derma, and taking its course inwards to the larger areolar spaces of the corium, and sometimes as far as the subcutaneous areolar tissue. Having reached one or other of these situations, and surrounded by adipose tissue, it coils upon itself and forms a small oblong or globular mass,—the sudoriparous gland. Occasionally, the follicle has been seen to bifurcate previously to rolling itself up into the coil of the gland. The sebiparous follicle is shorter than both the preceding, often dilated into the form of a pouch; pursues a similar course through the skin, but to a lesser depth, and divides into branches, which, by their subdivisions and aggregations, constitute a compound gland often of considerable size. The sebiparous gland in different situations presents every degree of complexity of structure, from a simple follicular pouch, to the compound structure of the mammary gland, which is nothing more than an aggregation of large sebiparous glands, modified to suit the special purpose of producing, like the seb-

parous gland, an oily secretion, namely, the milk. Another peculiarity of the sebiparous gland is, that it very commonly opens into a hair-follicle, particularly into the follicles of the larger hairs.

HAIR-FOLLICLES AND HAIRS.—Every part of the skin is furnished with hair-follicles, and organized for the production of hairs, with the exception of the palm of the hands, sole of the feet, and that occupied by the nails. But there are situations in which also they are commonly absent; for example, the upper eyelids, the penis, and the last joints of the fingers and toes. The hairs present much variety in length and thickness, and admit of being divided into four groups; namely, long and fine, long and stiff, short and stiff, and short and fine. The *long and fine* hairs are represented by the hairs of the head, which in a state of health are long, fine, and silky. The *long and stiff* hairs are typified by those of the beard, of the whiskers, of the axillæ, of the pubes, and, in hirsute persons, the hair of the scapular region of the back, the hair of the chest, of the abdomen, and of the limbs. The *short and stiff* hairs are the hairs of the eyebrows, the eyelashes, the vibrissæ narium, and the hairs of the meatus auditorius. The *short and fine* hairs include the finest hairs, the down or lanugo of infants and young persons, the fine hairs of the so-called hairless parts of the body, and the less fine hairs of the trunk and limbs; to which may be added the hairs of the mucous glands of the conjunctiva, the carunculæ lachrymales.

The hair is a sexual character in all animals, and is not less so in man. In both sexes it is met with pretty equally developed in certain situations; for example, on the head, the eyebrows, the edges of the eyelids, the armpits, and the pubes. But in the adult male the distribution of the hair is more extensive; for example, the beard and whiskers, on the chest, the shoulders, and thoracic portion of the back, and the abdomen; and the limbs are generally more hairy in the male than in the female. There are often a few scattered long hairs around the areola of the female; and the disposition of the hair at the pubes is a characteristic feature of the sexes; in the female being limited to the upper boundary of the mons Veneris, but in the male ascending in a pyramidal figure to the umbilicus. It has been inferred from the robust character of the male as compared with

the female, the stiffness and rigidity of the beard and whiskers, and the general hirsuteness of the trunk and limbs, that the hair of the head was coarser in men than in women, and this idea is favoured by the habit of wearing the hair long in the one and short in the other sex. But our observations, founded on numerous microscopic measurements, are opposed to this view, and we have found that the hair of the head is coarser in woman than in man.

The moment of life when the body is the most universally hairy, is that of birth; it is then covered with a short fine hair or down, the *lanugo*,—a temporary crop, which is afterwards shed, and gives place to the permanent hair. This is the period when the arrangement of the hair upon the surface of the body may be most conveniently studied, and when some curious phenomena may be ascertained. The oblique position of the hair with reference to the surface is the first point to attract attention; and in the next place it will be discovered that there is a law of arrangement of the hair, as well as of development and growth, and that the direction or *set* of the hair is always the same. Thus on the summit of the head is a kind of central point or corona, from which the hair radiates on all sides, with a gentle curve, sweeping from right to left behind, and from left to right in front: this constitutes the natural lay or set of the hair of the head. On the forehead, the hair sweeps from the middle line in a gentle curve to the right and to the left, forms the upper half of the eyebrow, and descends over the temple to become the central part of the whisker. At the inner angle of the eye is a facial centre of radiation, from which a vertical line of divergence descends by the side of the nose and mouth to the lower jaw, and then curves forward to the under-part of the chin. From the facial centre at the angle of the eye, the hair sweeps round with a gentle curve and is distributed over the root of the nose, along the eyelids, and over the upper part of the face. The rays that pass upwards and inwards meet the corresponding rays from the opposite side, and form a crest; while those that ascend meet the currents from the line of divergence of the forehead, and produce a second crest, which, when strongly developed, connects the eyebrows across the root of the nose. The rays that sweep across the upper eyelid form the lower half of the eyebrow, while those that pass along the lower

eyelid are lost in the front of the whisker. From the vertical line of divergence, the currents sweep obliquely inwards and outwards, those that pass inwards clothing the side of the nose and constituting the outer and converging portion of the mustachio and of the beard; while those that pass outwards sweep over the cheek, and are lost in the whisker, in the middle line of the nape of the neck, and along the lower border of the jaw. The mustachio arises from the lip below the opening of the nares, and sweeps outwards; and along the margin of the central part of the lower lip another diverging stream sweeps outwards into the beard on either side.

The direction of the hair upon the trunk of the body is governed by a centre of radiation, situated in each axilla, and two lines of divergence, proceeding from each centre, one running forwards to the middle of the sternum, the other downwards along the flank, across the hip, and down the inner side of the thigh to the ham. The currents proceeding from these centres are directed *inwards* and *upwards* upon the chest and neck, to the line of the lower jaw, and across the side of the neck to the middle line of the back; *inwards* and *downwards* to the umbilicus; and from the lower half of the abdominal vertical line, *inwards* and *upwards*, also to the umbilicus. So that the umbilicus becomes the centre of four converging currents, two from above and two from below. The currents that pass backwards from the axillary centre, and from the vertical line, sweep gently outwards and downwards to the middle line of the back.

In the arm, the currents proceed from two lines of divergence; one, derived from the axillary centre, surrounds the upper part of the arm like a ring; the other takes its origin from this ring, and runs along the front of the arm in a pretty straight direction, to the cleft between the thumb and forefinger on the back of the hand. From the upper border of the ring the hairs ascend to the shoulder, and sweep backwards to the middle line of the back; from the lower margin of the ring, and from the vertical line, they descend with a curve to the elbow; from the vertical line in the forearm, they sweep downwards in front and upwards behind, and also make their way to the elbow; so that the elbow becomes a centre of convergence. And on the back of the hand, and of the fingers, the direction of the sweep is downwards and outwards, towards the outer border of the hand.

The source of the currents on the lower extremity are two vertical lines of divergence; one being that which descends by the side of the abdomen, and, after crossing the hip, runs along the inner side of the thigh to the ham; the other, a line which begins at the hip and descends the outer side of the thigh, also to the ham; then passes along the outer side of the leg, and reaches the dorsum of the foot, terminating at the space between the great and second toe. The currents proceeding from these two lines pass downwards and inwards, towards the front of the thigh, and converge to the knee; those on the back of the thigh ascend towards the buttock and trunk. On the leg, where one line only exists, the diverging currents sweep around the limb and meet upon the shin; while on the foot they diverge with a sweep outwards and upwards, as on the back of the hand.

The principal centres of radiation are that of the crown of the head, the inner angle of the eye, and the axilla. The principal lines of divergence are, that of the vertical centre of the forehead, the side of the nose, mouth, and chin, the pectoral line from the axillary centre, the abdominal and internal crural line, the arm-let line, the humeral line, and the external crural line. The principal centres of convergence are, that at the root of the nose, on the sternum, the umbilicus, the elbow, the buttock, and the knee; and the principal lines of convergence, the ridge of the nose, the submaxillary line, the median line of the nape of the neck and trunk of the body, and the front of the thigh.

A HAIR, taken separately, consists of a shaft, a point, and a root. The *point* is conical, and blunt at the end; and in long hair is commonly removed artificially, either by cutting or by attrition; in which case the extremity is not unfrequently ragged, and sometimes split into several fibrous ends, and sometimes into a brush-like tuft. The *shaft* is more or less cylindrical, sometimes oval or fabiform in its outline, and sometimes unequally flattened, and varying in figure in different parts of its length. The *root* is the part included within the follicle; it is more uniformly cylindrical and somewhat thicker than the shaft, and at the extremity is dilated into an oval mass, the *bulb*, which is from two to three times thicker than the shaft. Furthermore, the bulb is implanted on a papilla, which rises through the fundus of the follicle.

It is apparent that the hair, in the course of its growth, varies

in its figure and dimensions; that at first it is small and pointed; that the bulb is larger than the root; that the root is cylindrical and larger than the shaft; and that the shaft is smaller than the root, and loses its cylindrical figure; the change of figure and reduction of size both being due to the same circumstance, namely, the desiccation of the hair at its escape from the follicle, and the subsequent collapse of its walls. It is the flattening of the hair by this process that gives rise to waving and curly hair. Sometimes the collapse of the walls of the hair occasions the formation of longitudinal grooves, and sometimes the grooves or the flattening pursue a spiral course along the hair, and produce a shorter curl, like that of the hair of the Ethiopian.

While accounting for the shape of the hair, we may glance for a moment at other of its qualities; for example, its thickness, length, and quantity. According to our admeasurements, the average thickness of the hair of the head is $\frac{1}{16}$ of an inch, somewhat thicker in the female than in the male, and somewhat finer in the child than in the adult. But the hairs of the same head do not all present the same thickness: some are coarser and some finer; and a difference of diameter is also met with at different points of the same hair. In reference to colour, flaxen hair is the finest, and black the coarsest; chestnut, red, dark brown, light brown, and white, occupying an intermediate position. In the hair of different regions of the body, the range of thickness is as follows:—beard, $\frac{1}{8}$; eyebrow, $\frac{1}{16}$; breast, $\frac{1}{16}$; eyelashes, pubes, and whiskers, $\frac{1}{8}$; head and thigh, $\frac{1}{16}$; axilla, $\frac{1}{16}$; leg, $\frac{1}{16}$; vibrissæ auris, $\frac{1}{16}$.

The length of the hair varies considerably in different parts of the body. The finest hairs (downy hairs, lanugo) scarcely appear above the level of the skin, while the hairs of the beard and of the head are remarkable for their length. When left to its full growth, as it is in the female, the hair of the head attains a length of twenty inches to a yard; the latter being regarded as unusually long.

The quantity of hair will depend upon the degree of proximity of the hair-follicles. Jahn has given us an observation, from which it would appear that, comparing the hairs of different parts of the body with the head, those of the beard are $\frac{1}{4}$ less numerous; those of the pubes, $\frac{1}{4}$; forearm, $\frac{1}{16}$; and outer border of the hand and front of the thigh, $\frac{1}{16}$. With respect to

the head, Whitof counted, on a square inch of the scalp, of black hairs, 588; chestnut, 648; and flaxen, 728. Having our attention drawn to the same point, we found, in a square inch of scalp of a young man of twenty-five, with black hair, the pores or openings of 744 follicles; and if we take the number of square inches presented by the scalp at 120, the number of pores would amount to 89,280. Now, if we suppose each pore to give exit to a single hair, the number of hairs would be as above—nearly 90,000; but as the pore is in reality the outlet of two or more follicles, we might, in a thick head of hair, have as many as 178,560, or nearly 200,000. Hence we may reasonably infer that the number in a head of average thickness of hair would amount to 120,000.

In structure, a hair is composed of three parts: of a central part, or medulla; a fibrous part, which constitutes its chief thickness; and an investing part, or cuticle. The *medulla* is a cellular structure, consisting of nucleated cells of an oval or globular shape, with the usual constituents of cells,—granules and fluids. The cells are filled with fluid only in the root of the hair; in the shaft it is lost by evaporation, and the cells are consequently found in a state of collapse, or are more or less extensively occupied with air. In this state they are sometimes described as *aëriferous cells*. It is the refraction of the light by the air contained in the cells of the medulla that gives to it its dark appearance when seen with the microscope. The medulla in some hairs occupies a space equal to one-third the diameter of the shaft; in others it is a mere streak; and in the short and fine hairs is wanting altogether.

The *fibrous portion* constitutes the chief bulk of the hair, is the seat of its colour, and bestows upon it its characteristic properties; for example, its toughness and elasticity. It is composed of fibres resulting from the metamorphosis of the cells of the papilla or pulp; and the colouring element is distributed through it in the form of dots and streaks. The dots are the pigment-granules, while larger dots result from the aggregation of these granules; but the blackest hair, when seen through the microscope, is found to contain a larger proportion of uncoloured than of coloured material. The pigment-granules in differently coloured hair present every shade of tint, from the amber of golden hair to the deep black of dark hair.

The *cuticle of the hair* is transparent and homogeneous, and marked on the surface by transverse undulating lines. These transversely disposed lines are the edges of minute quadrangular scales or plates, which are derived from the surface of the papilla pili, or pulp, and overlap each other in regular succession, from the bulb to the apex of the hair. The presence of the transverse lines in the form of sharp ridges is detected by the fingers when a hair is drawn between them from the point towards the root; and they are the cause of the not uncommon phenomenon of hairs burying themselves in wounds, under the nails, and between the teeth and the gums. When the cuticle of the hair is examined at its junction with the bulb, it is found to present two layers, a deep and transparent layer, and the superficial and squamous layer just described.

The researches of modern physiologists, and especially of Huxley, have shown an identity of design between the structure of a hair and that of a tooth. The medulla pili is analogous to the cavitas pulpæ of the tooth; the fibrous structure of the one is the dentine of the other; the cuticle of the hair represents the enamel of the tooth; and the squamous surface of the cuticle, the persistent capsule (Nasmyth) of the tooth.

The follicle of the hair, or hair-sac, is identical in structure with the outer skin. It has a lining of epidermis or epithelium, which rests on the structureless limitary layer of the corium; and the limitary layer is supported by two fibrous layers; the inner fibrous layer having its fibres disposed transversely, the outer longitudinally. The outer fibrous layer forms the nidus for the distribution of the vessels and nerves of the follicle, and receives the insertion of the arrectores pili muscles. The epidermal layer lying in contact with the root of the hair by its inner surface is called the root-sheath. The root-sheath is about as thick, and often thicker, than the diameter of the hair which it incloses, and is made up of several strata of cells. The deepest cells, corresponding with the rete mucosum, have a transverse arrangement in reference to the axis of the follicle, while the superficial cells are longitudinal; those occupying the surface possessing nuclei (Huxley), and those placed between the deep and superficial stratum having no nuclei (Henle).

The fundus of the hair-follicle, or hair-sac, is slightly dilated, and occupied by the papilla or pulp of the hair. The papilla is

ovate in form, the base being upwards, and the apex downwards and blended with the subcutaneous tissues. It is analogous to a dermal papilla, but without vessels or nerves, and is surrounded with small globular nucleated cells, the formative elements of the future hairs. The nucleated cells are elongated by development and metamorphosed into the fibrous structure of the hair: the imperfectly metamorphosed cells of the fundus of the papilla constitute the medulla; while the outermost layer of the papilla is converted into the cuticle of the hair. The hair grows by the production of new cells in the papilla; the pressure onwards of these cells by successive formation behind, and the conversion of the cells the most in advance into fibres. When a hair is torn from its follicle, the newly-formed fibres are seen at its end in the form of a worn-out paint-brush: the nucleated cells remain behind. Often, when a hair is forcibly pulled out, a portion of the root-sheath is drawn with it, and remains about its end, sometimes forming an irregular mass, sometimes elongated to a point; but more frequently curved into the shape of a bulbous hook. It is not the root of the hair that is so turned round and bent, but only the root-sheath.

Growth of the hair has been noted to be more active in youth than in advanced life; in summer than in winter; by day than by night; in hair that is cut than in hair left to its natural growth; and in hair that is cut frequently than in that which is cut rarely. In a young person of feeble constitution, recently shaved, we found the rate of growth of the hair of the head to be nearly half an inch in the course of a month. Berthold states the rate of growth of the hair in young females between the ages of 16 and 24 to be more than half an inch per month. He observed that the beard shaved every 12 hours grew at the rate of $5\frac{1}{2}$ to 12 inches in the course of a year; shaved every 24 hours, it grew at the rate of 5 to $7\frac{1}{2}$ inches; and shaved every 36 hours, it grew only 4 to $6\frac{1}{2}$ inches. Whitof calculated that the beard grew $6\frac{1}{2}$ inches in the course of a year; and that in 80 years the length would amount to 27 feet.

The development of hair takes place by the protrusion inwards of the cells of the rete mucosum in the form of a bud; the bud is elongated by growth, and assumes the shape of the future follicle; a papilla rises from the fundus of the follicle, and very soon a separation is seen to have taken place between

the cells of the centre and those of the periphery of the mass; the former have become dark from the production of pigment, and elongated into the form of a hair; have become, in fact, the hair and the inner root-sheath; while the peripheral cells have assumed a transverse position, and constitute the outer root-sheath. As soon as the papilla is formed and has become active, the hair inclosed in the inner root-sheath is pressed upwards to the surface, the inner root-sheath opens, and the hair is liberated.

This is the mode of development of the deciduous hair of the fœtus, the hair that is shed immediately after birth; but before the shedding takes place, the permanent hair is already in progress of formation; a bud is protruded from the fundus of the follicle of the deciduous hair, and follows a similar course of development to that already described. When the formative process is complete, the permanent hair pushes the deciduous hair before it in its growth, and eventually takes its place. In after-years, young hairs are no longer produced by this means, but grow from the papilla of the fundus of the follicle. The protrusion inwards of the little mass of cells of the rete mucosum in the early formation of the hair, carries before it the liminary layer of the corium, and also its fibrous tissue; and these structures, at a subsequent period, become the three layers of the hair-sac.

The first stages in the development of hair—namely, the protrusion of the cells of the rete mucosum—are perceptible at the end of the third month of embryonic life; visible hair is present at the middle of the fifth month; and by the end of the sixth month, hair is apparent over the whole body, with the exception of the back of the fingers and toes, the nose, and the external ear. It shows itself first on the eyebrows, next on the upper lip, around the mouth, and on the head; and by the completion of the sixth month, the hair of the head is a quarter of an inch long; that of the eyebrows two lines; and the eyelashes one line. At birth, the child is covered with a thick down, the hairs being pale, without pigment, and without medulla. They are shed during the first year.

In chemical composition, hair differs from epidermis and horn, and also from albumen; its chief constituents are a compound of protein and sulphur, fat, pigment, salts of iron, manganese,

and silica. The quantity of ash is between one and two per cent. White hair contains besides phosphate of magnesia and lime.

SUDORIPAROUS SYSTEM.—The sudoriparous tubules and glands are distributed through the skin of every part of the body, with the exception of the concha and meatus of the ear, but are most remarkable for number and for size in the axilla; in the areola of the mamma; at the base of the scrotum and labia majora, and in the palm of the hands and sole of the feet. The glands are globular or oblong in shape; of a reddish-yellow colour; and situated at about the middle depth of the corium, sometimes in the lower stratum of the pars reticularis and sometimes in the subcutaneous cellular tissue. In the axilla they measure from half a line to a line and a half in diameter; at the base of the scrotum $\frac{1}{12}$ of an inch; and in the palm of the hand about $\frac{1}{16}$ of an inch; the average of their size being $\frac{1}{10}$ of an inch.

The sudoriparous gland is simply the small mass formed by the coil of the sudoriparous tubule; and issuing from the gland, the tubule ascends to open upon the surface of the epidermis. We therefore speak of it as consisting of two parts, the gland and the excretory duct; the entire length of the tubule composing the two being about a quarter of an inch. In ascending through the corium, the excretory duct is more or less flexuous; but in passing through the thick epidermis of the palm of the hand and the sole of the foot, it forms a spiral coil of remarkable regularity, and terminates on the epidermis, by an oblique and apparently a valvular aperture.

On the general surface of the skin, the excretory ducts of the sudoriparous glands,—the sudoriferous ducts,—open without any regularity; in the axilla, several of the ducts terminate by a common aperture; while on the palm of the hand and the sole of the foot they open upon the ridges of papillæ, and are disposed with great order, dividing the papillæ into little clumps or groups. On the palmar surface of the hand and fingers these apertures are situated at about one-sixth of a line apart, and on the plantar surface of the foot their distance apart is somewhat more than the fourth of a line. In both situations they may be seen by the naked eye as small indentations crossing the ridges transversely.

In structure, the sudoriparous tubulus consists of a lining of epithelium appertaining to the epidermis, and of a liminary layer and external fibrous coat derived from the corium. In the large sudoriparous glands, as in those of the axilla, the areola of the nipple, the base of the scrotum and labia majora, around the anus, and sometimes in those of the palm and sole, there is also found a layer of smooth muscle disposed longitudinally between the liminary membrane and the fibrous coat. The epithelium is composed of several layers of nucleated cells analogous to those of the rete mucosum, but has a different physiological destination in the smaller and in the larger glands. In the former it occupies about two-thirds of the area of the tubulus and performs the simple office of an epithelial membrane; in the latter it fills the entire area of the tubulus, the peripheral layers alone performing the office of an epithelium, while the central portion constitutes the solid element of the secretion. When the adhesion of the epidermis to the derma is loosened by scalding a portion of skin or by incipient decomposition, the epithelial lining of the smaller ducts may be drawn out of the tubuli by raising the epidermis gently, and separating it from the corium. At the same time it will be observed that the entrance of the tubulus into the corium is surrounded by a cone of cuticle, which is common to all the cutaneous tubuli, but is very remarkable in the palm of the hand and sole of the foot.

Besides the three or four coats of the tubulus already described, the sudoriparous gland is inclosed in a delicate network of capillary vessels, and is imbedded in cellular and adipose tissue. It is apparently unprovided with nerves.

According to Krause, the sudoriparous glands in the axilla are so numerous as to form almost a continuous layer beneath the corium; while those of the rest of the body he estimates to number 2,381,248; and their aggregate bulk, including those of the axilla, to be 39,653 cubic inches. In calculating the length of the sudoriparous tubuli of the whole body, taking the length of the single tubulus at a quarter of an inch, we arrived at the conclusion that the entire length would amount to nearly twenty-eight miles. In pursuing this calculation, we found the number of excretory pores in a square inch of the palm of the hand to be 3,528, and on the heel 2,268.

The development of the sudoriparous tubulus has been ob-

served by Kölliker in the foot of a foetus of the fifth month, and he concludes that the sudoriparous system is complete at birth. The process is similar to that already described as the mode of development of the hairs; a bud of rete mucosum grows into the corium, pressing before it the limitary membrane; by the sixth month the bud has become an elongated cylinder, and has reached the mid-depth of the derma; and by the end of the seventh month has traversed the entire thickness of the derma, and is curved at the end in preparation for the formation of the coil. While the embryo tubulus is progressing in growth, the central cells become softened and broken up, and are in readiness for excretion, while the cells of the parietes constitute the epithelial lining of the tubulus.

The secretion of the sudoriparous gland is water, holding in suspension protein, fat, pigment, and nitrogen; and in solution, chloride of sodium, hydrochlorate of ammonia, salts of lactic, butyric, carbonic, acetic, and formic acids, phosphate of lime, peroxide of iron; and when the kidneys perform their office imperfectly, urea, uric acid, and urates. It is saltish to the taste, and has an acid reaction.

SEBIPAROUS SYSTEM.—The sebiparous system, destined to provide a fatty secretion for the lubrication of the surface of the skin, is distributed, with a few trifling exceptions, over every part of the body, and especially to the more exposed regions, as the nose; to parts where friction occurs, as the axillæ and pudendum; around the apertures of the body, as the eyelids and anus; and the parts provided with hair. It consists of follicles and glands, which are situated in the upper stratum of the corium, in close relation with the hair-follicles. They open for the most part into the hair-follicles; sometimes they terminate on the surface of the epidermis by a common opening with the follicles of the fine hairs; and occasionally, in association with the finest hairs, they receive the opening of the hair-follicle.

The smallest sebiparous glands are found in connection with the coarser hairs, and the larger glands with the finer hairs. The hairs of the head are commonly supplied with a pair of racemose glands, measuring between $\frac{1}{16}$ and $\frac{1}{8}$ of a line in diameter. These open into the hair-follicle, one on each side, and near the superficial portion of the corium. The coarser hairs of the beard, axilla, and breast, have a little halo of three to five glands,

each measuring from one to three-tenths of a line, opening into the upper part of their follicles; while around the follicles of the hairs of the pubes, scrotum, and labia majora, they form a rosette of four to eight glands, the glands varying in size from a quarter of a line to a line, and in consequence of their larger size, extending for a greater depth into the corium.

In structure, the sebiparous follicle and gland are composed of the same three coats as the sudoriparous glands and hair-follicles; namely, an *external fibrous coat*, derived from the corium and continuous with the fibrous coat of the hair-follicle; a *middle coat*, derived from the liminary layer; and an *internal coat* or epithelium, which is continuous with the outer root-sheath of the hair-follicle, or with the rete mucosum. The epithelium consists of several layers of nucleated cells, and is thicker in the larger than in the smaller ducts. The vessels of the sebiparous glands are the same as those of the hair-follicles.

The development of the sebiparous follicles and glands is identical with that of the hair-follicles and sudoriparous tubules: it begins by the in-growth of a bud from the rete mucosum, or from the hair-follicle; the bud lengthens into a tubule, and then ramifies, so as to constitute either a simple racemose gland, or a compound racemose gland. This process is first perceptible at the fourth or fifth month of foetal life; it begins in the eyebrows, and extends by degrees to the rest of the body, but is not completed at the time of birth.

The sebaceous secretion is a semi-solid substance, composed of disintegrated cells, fat, albumen, casein, extractive matter, and phosphate of lime.

PHYSIOLOGY OF THE SKIN.

THE skin is a defensive covering to the body, capable of resisting moderate violence by virtue of its toughness and elasticity, and endowed with sensation, which gives notice to the muscular system of the approach of injury, and enables us to avoid it. The sensation of the skin is of two kinds, common and special, *common sensation* being that which exists throughout the general surface, and *special sensation* residing in the hands and in the fingers, and conferring the special sense of touch.

The skin also possesses the singular property of maintaining a proper relation between the fluids of the body and the surrounding atmosphere: in certain conditions of the body and of the atmosphere it *exhales*, and under certain other conditions it *absorbs*. It is therefore an organ of exhalation and absorption, acting under the control of the general vitality of the system.

Another of the functions of the skin is *secretion*: it is a secreting organ of albumen in the production of the epidermis and of the hair; it secretes, besides, the perspiratory fluid, or sweat, and the sebaceous substance.

To sum its properties, we must regard it as an organ of resistance of injury; as an organ of sensation, of the common and of the special kind; as a supporter of the integrity of the tissues, by virtue of its exhalant and its inhalant powers; and as a conservator of its own healthy condition, its temperature, and of the purity of the blood, by its secretory function.

The *special sense* of touch which resides in the hands, and especially in the pulposus extremities of the fingers, is provided for by means of a special organization, the tactile papillæ, and possibly also by that curious apparatus of nervous ganglia situated in the subcutaneous tissue, the Pacinian corpuscles. By means of this sense we determine the qualities of surrounding objects; we are enabled to detect their resistance, their extent, and their variety of surface; to distinguish between hard and soft, smooth or rough, hot or cold. And the educated sense acquires the extraordinary power of tracing the most minute variations of form or surface; it enables the blind to read, and in some instances to detect the mysterious tactile differences of colours.

The *common sensation* of the skin presents some interesting phenomena in reference to the sensation of different regions of the body and the appreciation of heat and cold. The most sensitive parts are the pulps of the fingers; the least, the middle of the internodial portion of the limbs. The experiments of Weber, made with a pair of compasses, have shown that the points applied against the skin do not produce a double impression until they are separated to a certain distance apart; that on the pulp of the middle finger, the interval of separation of the points must be one-third of a line; on the palmar surface of the same finger, two lines; on the cheek, five lines; forehead,

ten lines; on the middle of the breast, twenty lines; and on the middle of the forearm and thigh, thirty lines, or upwards of two inches. He also noted, as might have been inferred, that the sensation was always most lively in the direction of the nerves of the part; for example, vertically on the forehead, and transversely on the cheek and neck.

Other experiments made by Weber, on the power of appreciation of temperature, are also interesting. If the two hands be placed in a basin of warm water, the water will seem warmest to the left hand, although the right hand is the most highly appreciative of the special sense of touch. Again, the sense of heat is shown to be materially influenced by quantity as well as by intensity: a hand plunged in water of a certain temperature may feel it too hot to be borne, while a single finger discovers nothing more than a pleasant warmth. Hence, the hand is a bad medium for testing the heat of a bath: to the finger the water in the bath may seem agreeable, to the hand it communicates the sensation of a proper heat, but to the entire skin it may prove insupportable. These experiments also tend to show that a moderate heat applied to a large surface is likely to produce a more powerful impression upon the nervous system than a greater heat upon a more limited surface.

The sensation of the skin is modified very considerably by its state of health or disease: in a state of aberration from the standard of health, its sensibility may be increased or diminished, or it may be perverted; the more common examples of perverted or morbid sensibility being, heat, cold, itching, tingling, smarting, pricking, shooting, creeping, tickling, burning, scalding, &c. These sensations are referrible to the condition of the nervous system, and are a part of common sensation, while certain other peculiarities of sensation belong to special sense; such as, the sense of tickling in the armpits, on the flanks, and in the soles of the feet; and the erection of the nipples, under the impression of touch.

The *exhaling* property of the skin contributes materially to the general perspiration, and is not distinguishable as a separate source of excreted fluid; it is derived from and through the epidermis, and also from the hair, the aëriferous cells of the latter being due to the substitution of atmospheric air for organic fluid.

The *absorbent* property of the skin is one of the means by

which the circle of change is maintained in the economy; and in this respect, the only difference between the inorganic and the organic mass is, that in the former the absorption and the exhalation are governed by physical laws only; whereas, in the organic body, although governed also by physical laws, those laws are controlled and directed by the higher power of vitality. The skin is most favourably organized and disposed for the exercise of the phenomena of endosmosis and exosmosis,—a moist membrane interposed between a mass of fluids within and an atmosphere of fluids without, some gaseous and some aqueous. There can be no doubt that the skin imbibes largely of the oxygen with which it comes in contact by its surface, and that the chief of the advantages of ablution and bathing arise from this property; moreover, in a morbid state of the skin, one of the principal of the agents of evil against which we have specially to guard, is the life-giving, but potent and stimulant, oxygen.

The absorbent property of the skin is conspicuously shown when the body has been deprived of its fluids by excessive perspiration. One of our friends, an observant man, noticed that after taking a hot-air bath, he lost a pound in weight; but that in two hours he had regained that pound of weight, although in the mean time he had neither eaten nor drunk. This pound of moisture lost was clearly replaced by the atmosphere, partly no doubt through the agency of the lungs, but in a measure also through the skin.

When the body is immersed for awhile in water of a certain temperature, say 82° of Fahrenheit, and a few degrees below that point, it increases in weight by the absorption of fluid, and under certain circumstances the proofs of absorption are obtained through the aid of chemical means. A man who had bathed in a weak solution of the ferrocyanide of potassium, showed the presence of that salt in his urine; and alkaline urine has been detected in those who have bathed in the waters of Vichy. Colouring matters also have been discovered in the urine of persons who have been for a long time immersed in water containing such substances; and Fourcault kept birds in water, the head being free, until they vomited water from the stomach.

When, instead of the moderate temperature already indicated, the temperature of the bath corresponds with or is a little over that of the body, an opposite action to that of absorption takes

place, namely exhalation, and the body loses in weight. These experiments have also shown that in the lower temperature—that which conduces to absorption—the nervous system is tranquillized, the action of the heart is subdued, and a sedative effect is produced; but that in the opposite circumstances—namely those that conduce to exhalation—the nervous system is excited, the heart's pulsations are more frequent than natural, and the condition of the system in general is one of irritation.

The power of absorption possessed by the skin has been turned to use in various ways: emaciated and exhausted persons incapable of taking nourishment by the mouth have been kept alive for awhile by baths of milk and baths of broth; medicines also have been exhibited in this way. Certain medicinal substances, such as hellebore, will act upon the system when kept in contact with the skin by means of a poultice; but, generally, in pursuing the *iatareptic method*, or method of introducing medicinal substances into the blood through the agency of the skin, we have recourse to friction. The old practice of mercurial inunction was founded on this property of the skin; and croton oil and preparations of strychnia will produce their characteristic effects upon the system when applied in a similar manner.

These experiments make us aware of the importance of the epidermis in resisting the admission of foreign substances into the system; our experiment fails on those parts of the body where the epidermis is thick, and we consequently select a spot where the epidermis is known to be thin; for example, the flexures of the limbs, and particularly the armpits and groins. The substances to be “rubbed in” must be in suspension or solution in water or fat; and the frictions must be continued for a considerable time, and repeated frequently. The epidermis is most favourable for the imbibition of these substances when softened in its tissue by saturation with fluid.

When the *endermic method* of administration of medicines is a matter of importance, the epidermis must be removed as by a blister, and the medicinal substance sprinkled on the denuded derma. Certain substances will act on the system when presented in this manner almost as quickly as they do on being taken into the stomach; and there are diseases, such as hydrophobia, wherein this method becomes one of great value. It is only the more potent medicines that would require to be used in

these extreme cases, and they are the best suited for the purpose; for example, strychnine, morphine, belladonna, &c. Our attention is sometimes called to the absorbing power of the skin, in the instance of strangury, produced by the application of a blister; or local paralysis following the use of lead.

Mr. Ceeley records a very important and practical illustration of the absorbing power of the skin, as applied to an organic fluid, the vaccine lymph; and the illustration is equally applicable to the absorption of animal poisons, such as that of syphilis. He says: "I have often succeeded in procuring vaccine vesicles without puncture, on the skins of children especially and young persons, by keeping lymph in contact with the skin, and excluding it from the air by a coating of blood. Active lymph blended with blood, casually trickling down the arm and drying in the most dependent part, will often give rise to a vesicle." In this case the coating of blood acts in a similar manner to oiled silk in a water dressing; it confines the exhalation of the part; the exhaled fluid dissolves the vaccine lymph, and at the same time softens the epidermis to a degree the most favourable for the endosmosis that subsequently takes place.

The *secretions* of the skin are the sebaceous matter and the sweat. The *sebaceous secretion* is produced on all parts of the body, with the exception of the palm of the hands and sole of the feet. It is an oily emulsion, elaborated by the cells of the epithelium of its glandular apparatus, and distributed very largely upon the surface of the epidermis. It preserves the normal moisture of the epidermis; acts as a varnish of protection to parts of the body that are exposed to the atmosphere, to friction, or to the irritation of fluids, and gives brightness and beauty to the hairy vesture of man. The uses of the sebaceous matter might be best illustrated by a view of the consequences of its absence: the epidermis would become dry, parched, and broken up into scales; it would break with the movements of the body, and a state of disease be quickly established. In temperate climates the skin produces secretion sufficient for all the purposes required; but in extremes of climate, whether of the north or of the south, the natives are constrained to have recourse to an artificial substitute for sebaceous matter; the former to defend them from the cold, the latter from the burning heat.

The situations in which sebaceous matter is poured out upon the skin in greatest abundance are—the head, to co-operate with and contribute to the uses of the hair; the face, and especially the nose, to provide for the constant exposure of those parts to the severities of climate; the armpits and perineum, to assist in the defence of the skin against friction and the accumulations of fluid; and around the apertures of the body, for protection against the contact of fluid secretions.

The sebaceous secretion is an oleaginous emulsion, consisting of water, stearine, oil-globules, pigment-granules, epithelial cells, and saline principles. It is variously modified in different parts of the body; in some, as in the ear-tubes, constituting the *cerumen* or *ear-wax*, and very remarkable for its brownish-red colour and bitter taste; in others, as in the perineum, being distinguished by a peculiar odour, due to butyric acid. Simon states of the cerumen of the ears, that it is “an emulsive compound, which contains a soft fat, albumen, a peculiar extractive bitter matter, epithelial scales, lactate of lime, and an alkaline lactate, but no chlorides, and no phosphates soluble in water.” And Esenbeck gives the following formula of chemical composition of the sebaceous substance:—

Fat	24.2
Osmazome, with traces of oil . . .	12.6
Watery Extractive (salivary matter) .	11.6
Albumen and Casein	24.2
Carbonate of Lime	2.1
Phosphate of Lime	20.0
Carbonate of Magnesia	1.6
Acetate and Muriate of Soda, and Loss .	3.7
	<hr/>
	100.0

The *perspiratory secretion* consists of the product of the sudoriferous glands, the sweat, together with the exhalation from the follicles and from the general surface of the skin. This secretion is undergoing constant evaporation from the cutaneous surface, and in a tranquil state of the body is commonly inappreciable to the eye: hence the term *insensible perspiration*; while in an active condition of the body, it is seen oozing from the pores, bedewing the surface, and sometimes running down the skin in little rills: this is the *sensible perspiration*. The quantity

of the perspiratory fluid has been variously estimated by different observers. Lavoisier and Seguin state the mean quantity in twenty-four hours to be 33 ounces, while experiments having reference to forced perspiration have shown that the weight of the body may be reduced two, three, or four pounds in the course of an hour.

The terms *insensible* and *sensible* perspiration have no other signification than that of indicating, that, although invisible, transpiration and exhalation are constantly taking place. The same amount of perspiration may at one moment be sensible, and at another insensible, by a mere alteration of the physical condition of the surrounding atmosphere. For example, in a dry and still air, perspiration may be raised by exercise to the point of being visible, while in a current of air, the temperature and other conditions being the same, it would be evaporated so quickly as to be invisible, and a moment after, if the experimenter were to be surrounded by an atmosphere saturated with moisture, there would be an end to evaporation, and the perspiration would roll down the body in big drops and rills. In estimating the quantity and importance of the perspiration in the animal economy, these modifying conditions must be borne in mind; and it must be remembered also, that perspiration may be excited by heat, by exercise, and by certain medicines, which are thence termed diaphoretics.

Amongst others of the modifiers of perspiration is the nervous system, as is shown in the arrest of that secretion during the hot stage of fever, and its sudden outburst in syncope, and under the influence of emotions of a depressing kind, such as fear and anxiety. Perspiration is most active during digestion, and least so immediately after a meal.

The harmony of the functions of the body is illustrated in the sympathy which the secretion of perspiration maintains with other secreting organs of the system; for example, the lungs and the kidneys. In the summer time, the skin acts freely by way of perspiration, and the quantity of the urine is diminished; and in the winter these conditions are reversed; the urine is then the most abundant, the skin the least. If on a cold evening we quit a warm apartment, the perspiration immediately receives a check, and the kidneys are with equal suddenness prompted to action; and this is especially the case

if the renal organs have been previously excited by alcoholic stimulants. Dr. Lining, of South Carolina, has shown by experiment, that the quantity of perspiration is more than doubled in July as compared with February, while the amount of the urine is exactly the reverse. In certain diseases also, this sympathetic equilibrium of the secretions is strikingly manifested; for example, in the dry skin of the diabetic patient, and in the profuse night-sweats of phthisis pulmonalis.

The perspiratory secretion is an important regulator of the temperature of the body, as we see illustrated in the power which we possess of enduring a high temperature. We have ourselves remained for ten minutes in a temperature of 250° ; Blagden supported a temperature of 260° for nearly the same period; the oven of Sir Francis Chantrey, used for drying his moulds, and heated to a temperature of 350° , was constantly entered by his workmen; and so also is the oven of Mr. Magnus, employed for enamelling on slate, and kept at a temperature of over 400° . Mr. Magnus once remarked to us, that the accidental spilling of a tumbler of water in this oven would immediately produce scalding. Another series of experiments has shown that in these very high temperatures, the heat of the body is very little raised above its normal standard; the bulb of a thermometer held in the mouth of a man who had remained in a temperature of 120° for a quarter of an hour, was raised only to 105° ; and when animals were destroyed by a heated temperature, their internal heat never exceeded the natural standard more than twelve or fourteen degrees.

But this power of preserving a standard temperature of the body is lost as soon as the above conditions are reversed. A gentleman who visited the natural hot-vapour baths of Nero, near Pozzuoli, which in highest temperature do not exceed 122° , makes the following report of his experiment:—To reach the source, he had to pass along a narrow winding passage, seven feet in height, three in width, and one hundred and twenty yards in length. Just within the mouth of the passage, the temperature was 104° in the upper strata of the atmosphere, and 91° near the ground; further on, the air was filled with dense vapour, of 118° above, and 111° below; and over the bath it was 122° ; the heat of the spring being 185° . After proceeding one-third the length of the passage, he began to feel

a sense of oppression, and his pulse rose from seventy to eighty beats in the minute. Further on, the oppression increased: his breathing became rapid and panting; he was constrained to stoop frequently for a chestful of cooler air; he sweated profusely, his head throbbed, and his pulse was 120. Continuing onward, the sensations of suffocation became insupportable; he felt as though his head would burst; his pulse became too rapid to count; he was exhausted, and becoming unconscious; and it demanded all his remaining strength and energy to stagger back into the open air. He was faint, and experienced a fulness of head, relieved by hæmorrhage from the nose, and remained uncomfortable during the rest of the day, his pulse continuing to be one hundred in the minute, and his sensations of uneasiness considerable.

So much importance is attached by some pathologists to the free transpiration of the skin, that Fourcault believed its suppression to be the cause of certain chronic diseases, and particularly of scrofula and consumption; the latter disease, according to him, being the consequence of a cold and damp atmosphere, combined with want of proper exercise. To put his theory to the test of experiment, he covered the coats of animals with an impermeable varnish, and in a short time they died; indeed, so quickly, that, as he avers, they lived for a shorter period than animals altogether deprived of their skin. Their mucous membranes, their serous membranes, and the nervous centres, were all found to be excessively congested after death. In a horse, the vessels of the Schneiderian membrane were loaded, and relieved themselves by a profuse discharge. Sheep suffered in a similar manner, and had also coryza; while dogs were seized with inflammation of the bowels, and congestion and enlargement of the liver. The animals suffered very early from oppression and difficulty of breathing, and died of asphyxia, accompanied with convulsions. In an animal varnished on one side only, the cutaneous capillaries of that side were found gorged with dark-coloured blood, while on the opposite side the blood was scarlet, and scanty. In the majority, the veins near the heart were found distended with black soft coagula, and in some there were coagula in the lungs. He illustrates these phenomena by reference to the child whose skin was gilded to give brilliancy to the fête accompanying the election of Pope Leo the

Tenth: the child was to represent the golden age; but its death was the result of the celebration. Fourcault also produced albuminuria in dogs by similar means; the first change in the urine was a diminution of its acid reaction; then albumen appeared, and the fluid became alkaline.

Becquerel and Breschet conceived that if they could arrest transpiration by the skin, after the manner of Fourcault, they would produce internal fever; but the very opposite phenomena followed their experiments. The temperature of the deep muscles was reduced, in the course of half an hour after the application of the varnish, from 100° to 89° ; in another half-hour, to 76° ; and in another half hour the index of their thermo-electric apparatus denoted a fall in the temperature to within three degrees of the surrounding atmosphere; the latter being 63° . In one hour and a half, the temperature of the body had fallen thirty-four degrees, and the animal died.

That the perspiratory secretion is not only a defence to the economy, but also a purifier of the blood, is shown by its chemical composition. Its constituents are, water, nitrogen, animal extract, fat; carbonic acid, with carbonates of soda and lime; lactic acid, with lactate of ammonia; acetic acid, with acetate of soda; butyric acid, chloride of sodium, hydrochlorate of ammonia, phosphate of soda and lime, sulphate of soda, salts of potash, and peroxide of iron. Dr. P. A. Favre sums up his chemical researches on the composition of sweat as follows:—Its solid components, with the exception of a trace, are soluble in water; its predominant salt is chloride of sodium; alkaline sulphates exist in it in very small quantity; alkaline and earthy phosphates are barely discoverable; lactic acid is present in the form of lactates; it possesses a peculiar nitrogenous acid, *sudoric acid*, resembling uric acid in its chemical nature; sudoric acid is combined with alkalies, but uric acid never occurs; urea is present; there is but little oily or albuminous matter; the latter is in combination with the alkalies; the potash is chiefly combined with the organic acids, the soda with the mineral acids; at the beginning of perspiration, the organic salts exceed the mineral salts, but after a time the proportions are reversed.

The peculiar odour of the sweat is due to its organic constituents, and partly to the presence of ammonia; and its acid reaction to the acetic, the lactic, and the sudoric acids. Its gaseous

constituents are carbonic acid and nitrogen. The carbonic acid is derived chiefly from the food, and is exhaled in largest quantity after a meal or muscular exercise. Dalton estimates the quantity of carbon eliminated by the skin, and irrespective of varieties of food, at one-twentieth of the entire weight of the cutaneous transpiration. The nitrogen of the sweat enters the body with the food, or by absorption through the skin, in the shape of atmospheric air; during digestion, the atmospheric air undergoes decomposition, the oxygen combines with the carbon of the food to constitute carbonic acid, and the nitrogen is set free. The quantity of nitrogen is consequently the greatest during digestion, and is greater in herbivorous animals, in whom the process of digestion lasts longest, than it is in the carnivora.

CHAPTER II.

PATHOLOGY OF THE SKIN, AND CLASSIFICATION OF ITS DISEASES.

THE Skin in disease presents characters which are the direct opposites of those which distinguish its healthy state. There are characters which are apparent to the eye of the observer, and other characters which can be only fully appreciated by the sufferer.

The characters which are obvious to the eye—the *visual* characters—are, 1. redness; 2. unevenness or asperity from the presence of pimples; 3. asperity from the presence of vesicles; 4. asperity from the presence of large vesicles, termed bullæ; 5. asperity from the presence of purulent vesicles or pustules; 6. asperity from a scale of altered epidermis; 7. asperity from enlargement and prominence of the skin, constituting tubercles; and 8, discoloration or stain.

The characters which appertain to the sensations of the patient are pain in a variety of forms; for example, itching, pricking, stinging, burning, creeping, shooting, gnawing, and aching; together with flushes, chills, dryness, and stiffness.

The visual characters are the pathological signs or appearances by which the disease is distinguished. They are eight in number; and upon these signs the classification of Willan is founded. The classification of Willan is, therefore, a pathological classification, and its orders or groups, eight in number, are as follows:—1. Exanthemata; 2. Papulæ; 3. Vesiculæ; 4. Bullæ; 5. Pustulæ; 6. Squamæ; 7. Tuberculæ; 8. Maculæ.

1. EXANTHEMATA, derived from *εξανθεω*, to burst forth or effloresce, or throw out blossoms like flowers, is the term applied to a vascular congestion or redness of the skin, which is one while uniform and limited in extent, as occurs in erythema, erysipelas, and urticaria; and another while blotchy and dispersed over the whole body, as in roseola. Willan included in this order scarlatina and rubeola, which harmonize better with the idea of bursting into blossom, like flowers, than do erythema,

erysipelas, and urticaria, and may be regarded as the true illustration of exanthemata; while the existing group would be better represented by the term erythemata, taking erythema as its type. Scarlatina and rubeola differ from the erythemata in many important respects, the chief of which is their contagious nature. We have, therefore, thought it well to make them a group by themselves, under the name of zymotic or eruptive fevers. Another affection, namely, purpura, admitted by Willan into this group, has also been rejected; the redness of purpura being due, not to congestion of vessels, but to effusion of blood into the tissues of the skin.

As redness is the type of the order Exanthemata, it will be interesting to note the varieties of redness which may be present in cutaneous diseases. The redness may be scarlet, like that of arterial blood, the colour which has given a name to scarlatina. It may be crimson or raspberry-coloured, probably from a slower circulation, and the consequent intrusion of the venous change into the blood, as in rubeola; or it may be purplish or roseate, also from tardiness of circulation, or the congestion of a different set of vessels, as in roseola.

It will occur to some of my readers that in one of the eruptions of this group, namely, urticaria, there is a development of white and anæmic tubercles and wheals in the midst of the blotches of red. This is produced by spasm of the muscular structure of the corium, which not only causes prominence of the skin, but also presses out the blood from its vessels and renders it anæmic. As the spasm subsides, the prominence of the skin ceases, and the natural colour returns. In some instances the spasm is intermittent, and there is the appearance of a kind of ebb and flow of colour in the wheals, as we have several times had occasion to observe.

2. **PAPULÆ.**—The type of this order is a papula or pimple, which is defined by Willan to be “a very small acuminate elevation . . . with an inflamed base, very seldom containing a fluid or suppurating, and commonly terminating in scurf.” A careful examination of this pathological sign and a better knowledge of the anatomy of the skin shows us, however, that the pimple is the elevation of one of the follicles of the skin, from congestion of its vessels and infiltration of the tissues immediately around it. The papula, therefore, shows a deeper conges-

tion than that of erythema, and may exist independently of the superficial congestion, or in conjunction with it. Papulæ are hard to the touch, and are commonly accompanied with considerable and severe itching; the severity of the pruritus being, possibly, the result of irritation of a different set of nerves to those that are involved in the more superficial congestion of the erythemata.

The diseases included in the order Papulæ are,—Lichen, Prurigo, and Strophulus.

3. **VESICULÆ.**—A vesicula, according to Willan, is “a small orbicular elevation of the cuticle, containing lymph, which is sometimes clear and colourless, but often opaque, and whitish or pearl-coloured. It is succeeded either by scurf or by a laminated scab.”

Anatomy teaches us that the precise situation of the vesicle is, like that of the papule, the aperture of a follicle. Sometimes the cuticle is raised evenly from the whole circumference of the pore, and the vesicle is regular in its form; sometimes it occupies one lip of the pore, or more than one vesicle is developed around the circumference of the pore; and sometimes, where several vesicles are clustered together, the compound vesicle is found to possess a multilocular structure. It may be remarked that Willan’s standard of observation in the definition of a vesicle, was the vesicle which is raised on the back of the hand after exposure to the sun. In this situation the vesicle is really orbicular, as he describes; but in some other positions, as between the fingers, it is conical in figure; while in certain others, as on the trunk of the body, although retaining the orbicular form, it is commonly larger than elsewhere; as, for example, the vesicle of miliaria. On the palm of the hands, and palmar surface of the fingers, the cuticle resists the formation of distinct vesicles, and is raised in laminæ of some extent, through which the bead-like globules of effused lymph are distinctly perceptible. This is another example of the multilocular vesicle.

A vesicle would seem to be the consequence of a similar pathological process to that which gives origin to the pimple. There is congestion of the vessels of the follicle in both, while in one the serous fluid or lymph which results from the congestion is retained in the tissues, and produces a pimple, and in the other is poured out upon the surface of the corium, and, lifting the

cuticle, occasions a vesicle. And the difference seems due rather to the constitution of the patient than to the nature of the cause which excites the eruption. Two persons exercising in the sun, and exposed to the sun's rays, may the next morning find the back of the hands presenting a very different form of eruption, although the cause and the conditions were precisely the same. In one, possessing a bilious temperament, the eruption may be distinctly papular, in a word, *lichen solaris*; while in the other, of lymphatic temperament, the eruption may be vesicular,—*eczema solare*; nor would it be unlikely that in a third person, say of nervous temperament, there might be neither papulæ nor vesiculæ, but in lieu of these, an *erythema solare*.

The albuminous fluid which is poured out upon the skin under the influence of congestion or inflammation, is generally transparent at its first effusion, but in a short time becomes milky and opaque. This change is very conspicuous in the vesicular eruption called miliaria: in its transparent state, from the reflection of the colour of the inflamed base, the vesicles have a red appearance, and the eruption is termed miliaria rubra; while at a later stage, when the vesicles have become milky, it is called miliaria alba.

In his order Vesiculæ, Willan assembled seven different diseases: five of these we have thought proper to reject, and have retained only eczema and miliaria. The rejected eruptions are varicella and vaccinia, which are forms of variola; herpes, from the largeness of its vesicles, we have classed with bullæ; rupia we have transferred to syphilitic eruptions, to which it properly belongs; while aphtha is an affection of the mucous membrane, and not at all of the external skin.

In his definition of papula, as also of vesicula, Willan notes the termination of the pathological process in scurf, or in a laminated scab. This, it may be explained, is the natural termination of a congestion or inflammation of the skin, which suspends for a while the formation of the epidermis, or which destroys the life of the epidermis, by separating it from the living tissue on which it is naturally imbedded. In a short while the separated and loosened cuticle breaks away from its attachment, and is thrown off, either as a fine desquamation or scurf, or as a coarser desquamation, namely, a laminated scab.

4. BULLÆ are large hemispherical vesicles and bladders,

thrown up upon the skin on an erythematous base. The vesicles rarely exceed the size of a small currant, and constitute the eruption termed *Herpes*; while the bladders or blebs are termed *Pemphigus*.

The examples of bullæ, according to Willan, are Erysipelas, Pemphigus, and Pompholyx. Erysipelas we have restored to the order Exanthemata, its vesicles being an uncertain and accidental character. Pemphigus and pompholyx are the same disease, and the terms have nearly the same meaning; while *Herpes* we have taken from *Vesiculæ*, and joined with pemphigus in the present group.

The lymph which is effused into the vesicle of herpes is transparent at first, but rapidly becomes opalescent, and as the vesicle reaches maturity, yellowish or purplish: in the latter state it dries up into a hard scab of a deep amber-colour or black, and remains adherent to the skin for several days. The lymph of pemphigus is more like the serum of an ordinary blister, which the entire eruption very much resembles. The effused fluid passes through the usual stages of transparency, opalescence, and amber-tinted or purplish coloration, according to the predominance of the biliary or of the hæmic pigmentary principle: it is sometimes dispersed by rupture of the bleb, and sometimes dries up by evaporation, and leaves a thin cuticular scab, which is subsequently thrown off by desquamation.

5. PUSTULE.—When, instead of lymph or serum, the vesicle contains pus, the pathological lesion is termed a pustule. Sometimes the contents of the vesicle are lymphatic at first, and afterwards become opaque and puriform; this is a *sero-pustule*; but when more inflammation is present, they are pustular from the beginning. The transition of a vesicle into a pustule may therefore be taken as a sign of augmentation of inflammation; while the original development of the eruption as a pustule must be regarded as indicative of a higher degree of inflammation, a lower vitality of the part, or a constitutional proneness to the production of pus; in other words, a pyogenic diathesis.

It was customary for the older writers to distinguish four kinds of pustule; namely, *Psydracium*, *Phlyzacium*, *Achor*, and *Favus*. *Psydracium* is a small pustule, occurring in clusters, frequently confluent, containing lymph at first, and subsequently becoming purulent. *Phlyzacium* is a larger pustule with a hard

and inflamed base. *Achôr* is a small pustule occurring on the scalp at the apertures of the hair-follicles, and terminating in scurf. *Favus* also is developed around the mouth of a hair-follicle; but the matter which it contains is distinct from pus, and is termed favous substance. We, therefore, at the present time, recognize only three forms of pustules; namely, *psudracia*, *phlyzacia*, and *achôres*.

The diseases included in the order *Pustulæ* are *Impetigo*, which is an eruption of *psudracious* pustules, and *Ecthyma*, an outbreak of pustules of the *phlyzacious* kind. Besides these, however, Willan admitted into this order three other diseases; namely, *porrigo*, *variola*, and *scabies*; all of which we have thought proper to reject; *porrigo*, because it is a misnomer and without identification; *variola*, because it belongs to the zymotic group of eruptive fevers; and *scabies*, because it is an *eczema*.

6. *SQUAMÆ*.—A squama or scale, according to the definition of Willan, is “a lamina of morbid cuticle, hard, thickened, whitish, and opaque;” and the diseases falling within this definition are, *Lepra*, or, more properly, *Alphos*; *Psoriasis*, *Pityriasis*, and *Ichthyosis*. In reality, the only true squamous affection is *alphos*; *psoriasis* being merely a desquamating stage or form of chronic *eczema*; *pityriasis*, a *furfuraceous* variety of the same affection; and *ichthyosis*, a state of defective nutrition of the skin, in which the epidermis being imperfectly developed, breaks up over the greater part of the surface of the body into scale-like plates, corresponding with the lines of motion of the skin.

The scale of *alphos* (*lepra vulgaris*, Willan) is circular in form and surmounts a slight elevation of the skin, of a reddish colour, and hard and dense to the touch. It varies in size, in correspondence with the elevation upon which it is formed, from one or two lines to as many inches in diameter. It is white, porous, glistening, laminated, and imbricated; and when, instead of occupying an isolated position, the disease extends over a large surface, such as an entire limb, these characters are still appreciable, although the general form of the scale is disturbed. Upon close inspection, it is evident that the confluent or compound scale is made up of a number of small scales, each surmounting a separate little mound or tubercle.

It is important, to the full understanding of what is meant by the pathological sign termed a “scale,” that this description

should be borne in mind, in order to contrast it with the mere exfoliation of the ordinary, albeit morbid cuticle, which occurs in chronic eczema, and is termed psoriasis and pityriasis; and in ichthyosis. The desquamation of psoriasis and pityriasis is not unfrequently furfuraceous, or branny (*furfur*, bran); and sometimes farinaceous, or mealy.

7. TUBERCULA.—A tubercle, according to Willan, is “a hard, superficial tumour, circumscribed and permanent, or proceeding very slowly to suppuration;” and he assembles under this head every disease of the skin possessing prominence and solidity, not already disposed of in his previous orders. Tubercula is consequently a kind of *hochepot* for the convenient packing away of a little catalogue of ailments that otherwise might be difficult to arrange; beginning with a boil, picking up acne, lupus, and elephantiasis in its way, and ending with a humble wart. The complete list is as follows:—Phyma, Acne, Sycosis, Molluscum, Lupus, Vitiligo, Elephantiasis, Frambœsia, and Verruca. The student will see at once the necessity of grouping these diseases differently, and transferring the majority of them to other heads of classification.

8. MACULÆ.—Macula, a mark or stain, or spot, is a “permanent discoloration of some portion of the skin, often with a change of its texture;” and included under this head are three divisions: Ephélias, Spilus, and Nævus. Ephélias, or sun-stain, represents the family of discolorations of the skin, or dyschromatodermata; the commonest illustration of these being freckles. Spilus and nævus are the so-called mother’s-marks; the spili being the marks or moles characterized by pigmentary discoloration; and the nævi, those which are due to an abnormal development of the vessels of the skin, whether of its arterial or of its venous structure.

As a rude classification of great simplicity, none can be better suited for the early training of the student than the system of Willan. Its fundamental principles are few and distinct, easily carried in the mind, easily recognized by the bedside, and easy of application under every circumstance. The invention of this classification by Plenck, and its subsequent simplification by Willan, mark an important era in the progress of cutaneous medicine, and have cleared the way for a more precise and more practical arrangement. A practical and unobjectionable classi-

fication has engaged the thoughts of almost every dermatologist who has devoted his attention to diseases of the skin, but hitherto with little success; and in the absence of a more perfect system, we propose to adopt a classification that at least has the merit of being framed out of a practical material, and embraces every cutaneous disease at present known.

If we reject pathological lesions as the foundation of a classification, we may be led to ask, Which is the *commonest* disease of the skin? The determination of this question naturally establishes a point of commencement, and a standard of reference, while the remaining diseases may possibly fall into their proper places in a systematic arrangement, naturally, and as a matter of course. Thus, if it be shown that the commonest disease of the skin is Eczema, we may take the leading characters of eczema and establish a group of *eczematous affections*. Now, as eczema is a disease which is not limited to a part, or to a single tissue of the skin, but is general in its invasion and capable of attacking every region of the cutaneous surface, we may follow up eczema with three other groups, possessing a similar generality of character, and, like the eczematous group, each represented by a substantive disease: for example, Erythema, which we will take as the type of Erythematous affections; Pemphigus, which we will take as the type of Bullous affections; and Furunculus, which we will take as the type of Furuncular affections. After these general affections, we may consider next, the affections of the nerves, the vessels, and the relation subsisting between the vessels and their contained blood: these will furnish us with three other groups; namely, Nervous affections, Vascular affections, and Hæmic affections. After the tissues in general, the nerves, the vessels, and the blood, we may take disorders of development, nutrition, and growth; and these will constitute two further groups; namely, Developmental and Nutritive affections, and Hypertrophic and Atrophic affections. We may next turn from disorders common to the skin to what may be considered as specific affections; for example, the action on the system and on the skin of zymotic poisons,—Zymotic affections; the peculiar disease Alphos may be taken as the type of Alphous affections; Struma will typify Strumous affections; Syphilis, Syphilitic affections; Cancer, Carcinomatous affections; and Elephantiasis, Leprous affections. Having disposed of specific affections,

there remain the affections of the special apparatus of the skin; namely, the hair and hair-follicles; the sebiparous apparatus; the chromatogenous apparatus; the sudoriparous apparatus; and the nails; lastly, we may add a group of Traumatic affections, and one of Phytodermic affections. This is the classification which we shall venture to take as the basis of the present work. We have called it a clinical classification, as arising out of the analysis of a large number of cases of disease, and we now present it in a tabular form, as follows:—

CLINICAL CLASSIFICATION.

- | | |
|---|--|
| 1. Eczematous affections | 13. Syphilitic affections |
| 2. Erythematous affections | 14. Carcinomatous affections |
| 3. Bullous affections | 15. Leprous affections |
| 4. Furuncular affections | 16. Affections of the hair and hair-follicles |
| 5. Nervous affections | 17. Affections of the sebiparous apparatus |
| 6. Vascular affections | 18. Affections of the chromatogenous apparatus |
| 7. Hæmodyscrasic affections | 19. Affections of the sudoriparous apparatus |
| 8. Developmental and nutritive affections | 20. Affections of the nails |
| 9. Hypertrophic and Atrophic affections | 21. Traumatic affections |
| 10. Zymotic affections | 22. Phytodermic affections |
| 11. Alphous affections | |
| 12. Strumous affections | |

1. ECZEMATOUS AFFECTIONS.—Eczema, the commonest of the eruptions of the skin, is the type of this group; and the diseases embraced under this head are Eczema, Psoriasis, Pityriasis, Lichen, Impetigo, Scabies, and Gutta rosacea.

2. ERYTHEMATOUS AFFECTIONS.—Erythema is the type of erythematous affections, and the diseases assembled in this group are Erythema, Urticaria, Erysipelas, and Roseola.

3. BULLOUS AFFECTIONS, having Pemphigus for their type, include Herpes, Miliaria, and Pemphigus.

4. FURUNCULAR AFFECTIONS.—Furunculus is the type of furuncular affections, and its examples, Ecthyma, Furunculus, Hordeolum, and Anthrax.

5. NERVOUS AFFECTIONS of the skin are typified by an irritable condition of the cutaneous nerves, giving rise commonly to itching, but sometimes to other forms of pain. The affections

belonging to this group are Hyperæsthesia, Anæsthesia, Pruritus, and Prurigo.

6. VASCULAR AFFECTIONS are represented by alterations in the distribution and size of the vessels of the skin; the type and principal illustration of these affections being Nævus vasculosus, to which is added Hypertrophia venarum.

7. HÆMODYSCRASIC AFFECTIONS, or affections in which the relations of the blood to its vessels are abnormally altered, are represented by Purpura.

8. DEVELOPMENTAL AND NUTRITIVE AFFECTIONS are typified by Xeroderma, Ichthyosis, and Cachexia cutis.

9. HYPERTROPHIC AND ATROPHIC AFFECTIONS are exemplified by Nævus hypertrophicus, Ecphyma, Kelis, Bucnemia tropica, and Atrophia cutis.

10. ZYMOTIC AFFECTIONS are the diseases or fevers originating in a poisonous ferment, and attended with exanthema of the skin; in other words, the eruptive fevers. They are five in number:—Rubeola, Scarlatina, Variola, Varicella, and Vaccinia.

11. ALPHOUS AFFECTIONS.—Alphos, the type of the Squamæ of Willan, stands alone in this group; heretofore misnamed lepra, on account of its roughness, and psoriasis, on account of some resemblance to the squamous stage of eczema; it now resumes its proper position as an idiopathic and substantive disease.

12. STRUMOUS AFFECTIONS include diseases of the skin which have their origin in struma or scrofula. The examples of these affections are Scrofuloderma and Lupus.

13. SYPHILITIC AFFECTIONS embrace all the varieties of syphilis developed on the skin,—the syphilodermata, whether they present themselves as exanthemata, papulæ, pustulæ, bullæ, tubercula, or ulcera. Rupia is a bullous syphiloderma.

14. CARCINOMATOUS AFFECTIONS include the group of cancers of the skin.

15. LEPROUS AFFECTIONS embrace the consideration of the true or ancient lepra, the elephantiasis of the Greeks, and all the varieties appertaining to this grave disease. The principal forms are included under the two following heads: Lepra and Vitiligo.

16. AFFECTIONS OF THE HAIR AND HAIR-FOLLICLES.—The examples of disease assembled under this group are Alopecia,

Area, Canities, Hirsuties, Trichiasis, Trichosis, Favus, Kérion, Sycosis, Plica, Erythema folliculorum, Stearrhœa, and Narcosis folliculorum.

17. AFFECTIONS OF THE SEBIPAROUS APPARATUS.—The diseases belonging to this group are Stearrhœa, Ichthyosis sebacea, Comedones, Accumulationes sebaceæ, Cornua, Tubercula miliaria, Tumores serosi, Tumores sebacei, and Acne.

18. AFFECTIONS OF THE CHROMATOGENOUS APPARATUS.—Under this head are grouped the Dyschromatodermata; for example, Lentigo, Ephélis, Melasma, Leucosma, and Chloasma.

19. AFFECTIONS OF THE SUDORIPAROUS APPARATUS are represented by Idrosis, Anidrosis, Osmidrosis, Chromidrosis, and Hæmidrosis.

20. AFFECTIONS OF THE NAILS have their representatives in Degeneratio unguium and Onychia.

21. TRAUMATIC AFFECTIONS include the injuries resulting from the bites and stings of insects, and their habitation in the skin; together with other accidental injuries of the organ.

22. PHYTODERMIC AFFECTIONS.—The dermatophytic diseases are founded on a peculiar metamorphosis of the elements of the epidermic cells, by which the nascent cell is converted into a structure closely resembling a vegetable organism, and possessing the attributes of the mucedines. They occur chiefly in association with hair-follicles, and with one exception are borrowed from affections of the hair and hair-follicles; the exception being chloasma, which is derived from affections of the Chromatogenous apparatus. The diseases constituting this group are, Trichosis, Favus, Kérion, Sycosis, and Chloasma; and, according to some dermatopathologists, also Area.

We have endeavoured to show that the aims of classification are twofold, namely, in the first place, to lay down a plan by which a knowledge of diagnosis may be most easily acquired; and, secondly, to arrange a number of diseases according to a method that will facilitate the comprehension of their nature and phenomena, and conduce to their treatment with successful results. The first of these objects is amply fulfilled by the classification of Willan, which is essentially a classification of diagnosis; and consequently, *par excellence*, an educational classification; while the second has been attempted by a number of authors, with varied success, under the name of practical or

natural classification; the most recent of these essays being the CLINICAL CLASSIFICATION, which we have just endeavoured to explain.

We discover vestiges of a pathological classification as far back as the 16th century, when we are informed by a French author, Riolan, that some physicians include all diseases of the skin under three heads; namely, alterations of smoothness, of colour, and of magnitude; whereas, this arrangement affording no place for disorders of the hair, others prefer to divide them into Pustules, Deformities, and Tubercles; pustules comprehending all eruptions attended with roughness of the skin, whether pimples, vesicles, pustules, or scales; deformities, marks of all kinds, morbid colorations, and diseases of the hair; and tubercles, warts and condylomata. At a later period, namely, in 1776, a German author, Plenck, amplified this simple grouping into fourteen classes, which he subdivided into 115 genera. His fourteen classes are as follows:—

PLENCK'S CLASSIFICATION (1776).

Maculæ	Callositates
Pustulæ	Excrecentiæ cutaneæ
Vesiculæ	Ulcera cutanea
Bullæ	Vulnera cutanea
Papulæ	Insecta cutanea
Crustæ	Morbi unguium
Squamæ	Morbi pilorum.

Willan's classification, it will be seen, took its origin in that of Plenck, and is, in fact, the arrangement of Plenck curtailed and improved; a selection of eight of his groups, and a rejection of six, although of these six he might very advantageously have retained the three last; namely, *Insecta cutanea*, *Morbi unguium*, and *Morbi pilorum*. Willan's classification was published in 1798, and is as follows:—

WILLAN'S CLASSIFICATION (1798).

ORDER 1.—PAPULÆ.

Strophulus	Prurigo
Lichen	

2.—SQUAMÆ.

Lepra	Pityriasis
Psoriasis	Ichthyosis

3.—EXANTHEMATA.

Rubeola	Roseola
Scarlatina	Purpura
Urticaria	Erythema

4.—BULLE.

Erysipelas	Pompholyx
Pemphigus	

5.—PUSTULÆ.

Impetigo	Variola
Porrigo	Scabies
Ecthyma	

6.—VESICULÆ.

Varicella	Miliaria
Vaccinia	Eczema
Herpes	Aptha
Rupia	

7.—TUBERCULA.

Phyma	Sycosis
Verruca	Lupus
Molluscum	Elephantiasis
Vitiligo	Framboesia
Acne	

8.—MACULÆ.

Ephelis	Spilus, &c.
Nævus	

The NATURAL CLASSIFICATION is founded upon a general view of the *nature* and *cause* of the disease, having for its object the development of a correct principle of treatment; hence it may also be called an *Etiological* and a *Therapeutical* classification. The earliest natural arrangement with which we are acquainted is that of Celsus, who divides diseases into such as should be treated by diet; such as should be treated by medicine; and such as should be treated by surgical means. This is obviously a therapeutical classification; but he further introduces into it a topographical element, and subdivides the diseases to be treated by medicine into a group of general and a group of topical affections.

A natural classification of more recent times is that of Alibert, published in 1810, and remodelled in 1832. Alibert's classification, called the "*Arbre des Dermatoses*," is based on

the affinities or analogies which are supposed to exist between certain diseases and to lead to a method of treatment which is identical for each separate group. His groups or families, twelve in number,—the twelve branches of the “tree of the dermatoses,” are as follows :—

ALIBERT'S CLASSIFICATION (1810).

Eczematous	Syphilous
Exanthematous	Strumous
Tineous	Scabieous
Dartrous	Hæmatous
Cancerous	Dyschromatous
Leprous	Heteromorphous.

Devergie, of Paris, in his excellent treatise, arranges cutaneous diseases into groups, in accordance with their amenability to treatment; their resemblance in form; their resemblance in pathological products or accidental conditions, and their foreign origin. His groups are fourteen in number, seven corresponding with the orders of Willan, and the remainder as follows :—

Parasitic affections (vegetable)
 Parasitic affections (animal)
 Scrofulous affections
 Syphilitic affections
 Exotic affections
 Diseases of nails
 Infantile diseases, especially of the hairs.

The most recent author of a natural classification, Hardy, of Paris, revives the views and some of the groups of Alibert; for example, the Dartres (tetter); in other respects his arrangement takes for its groundwork an etiological and therapeutical basis. Of his ten classes, seven are founded on the cause of the disease; for example, two, special poisons,—namely, eruptive fevers and syphilis; three, diathesis,—namely, dartres, scrofula, and cancer; one, parasites; and one, symptomatic of internal disease. The three remaining classes are: one, topical,—namely, local inflammations; one, elementary lesion,—namely, maculæ and deformities; and one, exotic diseases, or diseases of foreign origin. Viewed more in detail, his classes are as follows :—

HARDY'S CLASSIFICATION.

Maculæ; deformities	Dartres
Local inflammations	Scrofulous diseases
Parasitic diseases	Syphilitic diseases
Eruptive fevers	Cancers
Symptomatic eruptions	Exotic diseases.

1. **MACULÆ AND DEFORMITIES**; including alterations of colour, maculæ, red stains, ephélis, vitiligo, lentigo, warts, molluscum, ichthyosis and kelis,—diseases requiring no medical treatment in general; but in the event of a cure being sought for, to be removed by the knife or by caustics.

2. **LOCAL INFLAMMATIONS**: independent of any constitutional disturbance; or, if any constitutional symptoms appear at the outset of the disease, they are limited to feverishness of the slightest and most transient kind. The members of this group are: Erythema, Urticaria, Herpes, Ecthyma, Pemphigus, &c. The treatment required is very simple,—mildly antiphlogistic, local and general.

3. **PARASITIC DISEASES**: purely local, and due to the presence of a parasite, animal or vegetable; for example, Scabies, Sycosis, Herpes circinatus, and Favus. The treatment is obvious;—destruction of the parasite.

4. **ERUPTIVE FEVERS**: dependent on a general cause, the admission into the system of a virus, distinct for each variety of disease; for example, Scarlatina, Rubeola, Variola, &c. The eruption on the skin is preceded and accompanied by symptoms of constitutional disturbance of greater or less intensity. In conducting the treatment, the natural course of the disease is to be respected, and complications only attacked.

5. **SYMPTOMATIC ERUPTIONS**: the eruption is secondary, the treatment must therefore be directed against the primary disease. The diseases belonging to this group are: Herpes labialis, the roseolous spots of typhoid fever, Sudamina, and Purpura.

6. **DARTRES**: eruptions due to a particular state or general disposition of the economy, called diathesis: the members of this group are—Eczéma, Psoriasis, Lichen, and Pityriasis. These diseases are constitutional; the treatment consequently must be general as well as special.

7. **SCROFULOUS AFFECTIONS**: an important group, depending on the scrofulous diathesis. The treatment must be consti-

tutional, to control the diathesis, as well as locally alterative.

8. **SYPHILITIC AFFECTIONS**: resulting from the syphilitic diathesis, a tendency not necessarily innate or hereditary, but, ordinarily, accidental. The treatment must be the same as that which is adopted for syphilis.

9. **CANCERS**.—The most common form of cancer affecting the skin is that which is termed *cancroide*. The treatment is the removal of the disease by the knife, or, by preference, by means of caustics.

10. **EXOTIC DISEASES**: the produce of other countries; for example, lepra tuberculosa, pian, &c.

CHAPTER III.

ECZEMATOUS AFFECTIONS.

UNDER the head of Eczematous affections, we propose to assemble:—

Eczema	Impetigo
Psoriasis	Scabies
Pityriasis	Gutta rosacea.
Lichen	

ECZEMA, from *εζειν*, to boil out or boil over, is the popular Greek equivalent of our own popular term "eruption" (εας *εξελαται*, ab ebulliente fervore, Græci vulgo appellant*), and therefore means no more than a breaking or bursting forth; the Greek term, however, is more graphic than our own, inasmuch as it suggests the association of heat, and likens the disease to water in a state of ebullition, the little bubbles formed on the surface of the water being the representatives of the vesicles of eczema.

By the scientific Greek writers eczema was called Psora, in consideration of another of its properties, namely, itchiness; the word psora being derived from *ψαιν*, to rub; and the same property gave origin to the Roman term *scabies*; the word scabies being derived from *scabere* (à *σκαπτω*, second future of *σκαφω*, *fodio*), to scratch. From psora is derived psoriasis, a term also applicable to one of the forms of eczema, namely, its chronic and desquamating form. We find, therefore, that three of the special characters of this disease are portrayed in its several synonyms; namely, *eczema*, its eruptive character; *psora*, the itchiness accompanying the exudative stage; and *psoriasis*, the itchiness associated with scaliness or scurfiness.

ECZEMA is an inflammation of the skin, accompanied with alteration of its structure and derangement of its functions; it is more *vascular*, and consequently redder, than in health, its vessels being in a state of congestion; its *sensibility* is morbidly

* *Ætius.*

increased, sometimes taking on the character of itching, tingling, or smarting, and sometimes that of pain; it is *thickened* by infiltration of serum into its tissues, sometimes fissured and sometimes cedematous; it *exudes* a serous lymph at various times, and in various quantity, sometimes in excessive abundance; its cuticle is sometimes raised into *papules*, sometimes into *vesicles*, sometimes wholly removed, and is reproduced unhealthily, so as to form muco-purulent secretions and squamæ of various size; and sometimes is replaced by a *crust* of greater or less thickness, resulting from the desiccation of the morbid secretions.

In a few words, the characteristic signs of eczema are, redness, itchiness, interstitial and sometimes subcutaneous thickening, exudation, papulation, vesiculation, incrustation, and desquamation.

Eczema has no constitutional symptoms belonging to itself; the symptoms which accompany it being such as appertain to the form of constitutional debility, which occupies the place of its predisposing cause. There are three forms of debility which predispose to eczema; namely, nutritive, assimilative, and nervous. In *nutritive debility* the symptoms are chiefly those of deficient nutritive power, with waste of the tissues of the body, a state which gradually passes on to exhaustion and atrophy. In *assimilative debility* the symptoms are such as accompany disorder of the digestive and assimilative functions, and the secretions dependent on those functions. In *nervous debility* the symptoms take their origin in a weakened, irritable, and exhausted nervous system, and are such as would accompany that form of debility irrespective of the cutaneous eruption. The symptoms of eczema, therefore, are such as result from the presence of the eruption on the skin; either the irritability of the nervous system induced by a painful and itchy disorder, that destroys comfort and sleep, and sometimes gives rise to the wildest paroxysms of suffering; or the exhaustion of the digestive, assimilative, and nervous powers, occasioned by the drain on the system of an abundant and constant discharge.

It very commonly happens that an attack of eczema is preceded by symptoms of general disturbance of the digestive organs; by a feeling of fulness and oppression at the epigastrium, and by a feverish reaction of a mild type. These symptoms may last for several days, or for several weeks, and they cease

Immediately that the eruption makes its appearance; but it would be an error to regard them as a part of the eruptive disease; for they are occasional only, and not constant, and the same symptoms might precede a temporary diarrhoea, or a cholera, or, in fact, the evolution of a *causa morbi* in whatever shape it may be developed. It would be impossible to determine from such symptoms that an eczema was about to follow; and an eczema is in general produced without any forewarning or premonitory symptoms of any kind.

The relief occasioned to the symptoms of general disturbance just described, is due to its *derivative* action simply. And this derivative influence is manifested in a variety of ways; sometimes the eczema takes the place of an inveterate headache; sometimes of a neuralgia; of a rheumatism; and in fact may supersede any chronic ailment to which the body is liable. The phenomena of derivation suggest to the minds of the un instructed the idea of the exit, or the expulsion from the body, of some innate evil, and a consequent alarm lest the cure of the eruption may act as a repercussive, and throw back upon the economy the material of disease. And this impression is strengthened by the fact that, after the sudden and spontaneous disappearance of the eruption, some new malady has immediately sprung up. But the proper way of viewing the case is, to recognize a *causa morbi*, the consequence of debility, and the possibility of the determination of that cause upon any point of the economy, the weakest being that usually selected. And if there be several weak points, then each may be attacked in succession, or the irritation existing in one may be suddenly transferred to another. Admitting these data, it must be clear that if we can cure the manifestation in one spot, we relieve it in the whole; because a cure can alone be effected by removing the debility which is the real predisposing cause of the disease. We have no reason to fear repercussion; our fear should be rather our incapability of mastering the disease; and we neglect our duty when we allow the disease to run on for months and years without attempting a cure, placing our reliance on morbid nature, and hoping, if the patient be an infant, that the cutting of the teeth, or the development of puberty, or menstruation, or manhood, will eventually bring about a cure.

There is another evil in deferring a cure, namely, the setting

up in the constitution of a tendency or diathesis. Diathesis is of two kinds, *hereditary* and *accidental*. The latter is the consequence of a protracted continuance of the disease, and in another generation may become hereditary. When a diathesis exists, a patient may be subject to attacks of eczema during his whole life, and every little disturbance of function of the digestive or nervous system will, in place of any other ailment, occasion an eczema.

Eczema is not contagious, although it is often met with pervading a family, or even a community, or assuming an epidemic character, and, like other chronic disorders, it may be more common in certain localities than in others. We remember a case in which a weakly mother nursing an eczematous infant, had eczema on the arm against which the head of the child rested. The discharges from the eruption of the child were the undoubted cause of the eczema in the mother; but this was no proof of contagion; any discharges or any irritant would have caused irritation of the mother's skin, and in her existing state of debility, eczema is just the result that might have been anticipated; even apart from the fact that she might also have been an example of the eczematous diathesis.

Eczema is a chronic affection and has no specific course. Like other chronic inflammations, it has a beginning and an ending; in other words, its rise and its decline, with an intermediate period of activity of greater or less duration. In a severe case the rise may present redness, heat, swelling, papulation, and sometimes vesiculation: this may be regarded as a first stage or *first period* of the disease. Next there may succeed exudation, incrustation, and sometimes suppuration: this is a second stage or *second period*,—the stage of exaltation. Lastly, there will follow the third stage, the stage or *period of decline*, comprising desquamation, with redness, and often thickening of the skin. These three periods, when they exist, may be termed,—the *first*, the erythematous, the papular, and the vesicular period; the *second*, the exudative and encrusted period; and the *last*, the squamous or desquamating period.

But eczema rarely presents all these characters complete, nor do they follow in regular succession; they are modified by constitution, by temperament, and also by situation; and these modifications are the foundation of its varieties. Sometimes

redness or vascular congestion of the skin is the dominant character, and the variety an *eczema erythematosum*; sometimes, with the redness, the vascular congestion and serous infiltration of the follicles give rise to pimples, and the resulting variety is an *eczema papulosum*; in a third instance the predominating character may be vesicles, *eczema vesiculosum*; in a fourth, the leading character may be exudation, and the eruption an *eczema ichorosum*; again, there may be pustules, which are commonly of the type termed pyodracious pustules, mingled with the other signs of pathological lesion, and the variety is an *eczema pustulosum*; or, in the chronic form, the principal feature of the eruption may be desquamation, and the variety, *eczema squamosum*.

These terms comprehend the principal forms of eczema dependent on symptoms; but different terms suggest themselves naturally for other different conditions; for example, the skin is sometimes cracked and fissured,—*eczema fissum*; sometimes the thickening and condensation, in a chronic stage of the affection, suggest the terms *eczema sclerosum* and *eczema verrucosum*; sometimes the state of the part is aptly expressed by the term *eczema oedematosum*; sometimes, from the nature of the secretion, *eczema mucosum*; and more than once we have met with a case to which, on account of the severe pain by which it was accompanied, the term *eczema neurosum* would be correctly applicable.

It is, however, rare to find an eczema perfectly simple in its eruption, and capable of being represented singly by any one of the terms already mentioned. More frequently two, or indeed, several of the forms may be present at the same time, and sometimes even the whole. Thus, in one case we may have an erythematous eczema accompanied with papulæ,—an *eczema erythematosum et papulosum*; or, it may be, an *eczema erythematosum et ichorosum*; or, if the exudation of fluid be the chief feature, we might name it *eczema ichorosum*, and in a less degree *erythematosum et papulosum*, or even *pustulosum*. Or the case might be one of *eczema vesiculosum et erythematosum*; or an *eczema squamosum* (*eczema chronicum*), which is at the same time, in part *fissum*, and in part *ichorosum*.

Varieties of eczema are also deduced from situation: hence we have *eczema capitis*, *faciei*, *aurium*, *palpebrarum*, *oris et labiorum*, *axillarum*, *mamillarum*, *umbilicale*, *inguinum*, *pudendi*,

perinei, ani, articularum, manuum et pedum, dorsi manûs, palmare et plantare, and digitorum. Moreover, we are taught by experience that in certain situations we are likely to meet with one or the other of the preceding varieties; for example, eczema capitis et aurium is commonly ichorosum in a recent attack, and squamosum at a later period; eczema articularum, eczema axillarum, eczema inguinum, and eczema pudendi are very frequently ichorosum, and sometimes mucosum. Eczema of the fleshy parts of the forearms and legs is not unfrequently vesiculosum, as is also eczema digitorum. Eczema dorsi manûs is usually papulosum; while eczema palmare is squamosum, and often, as are the tips and joints of the fingers, fissum.

The extent of the eruption will also come in for a share of consideration in the designation of varieties. The eruption may be *general* or *partial*. When partial, the patches may be single or multiple; they may be defined (*figuratum*), or diffused (*diffusum*). Sometimes they suggest the idea of the dimensions and figure of a piece of money (*nummulare*), and sometimes are bounded by a prominent ridge (*marginatum*), and spread by the circumference, while the inflammation subsides within the included area.

The classification of Willan as applied to eczema, has the effect of making its different pathological appearances separate diseases; for example, in its early stage, and in one part of the body, the eruption might present the characters of an erythema, and be placed in the order Exanthemata; in another stage, or in another part of the body, it would be classed with papulæ; in a third, it would belong to pustulæ; in a fourth to squamæ; and in a fifth only to the order in which it is placed by Willan, namely, vesiculæ. But in truth the rarest of all the varieties of eczema is its vesicular form; and in the preceding chapter we have drawn attention to the not uncommon circumstance of the same cause, namely, the sun's rays, giving rise in different persons to separate forms of eruption. Now, in this case, we put it to the student, whether it would not be infinitely more philosophical and certainly practical, to regard the eruption as three forms of the same disease; namely, as eczema in the three varieties, erythematosum, papulosum, and vesiculosum, than to treat it as three separate diseases, belonging to different orders, under the names of erythema, lichen, and eczema.

It follows from this mode of viewing eczema, for the suggestion of which we are indebted to Hebra of Vienna, that many varieties of eruption, which by Willan would have been classed in various of his orders, are, at present, considered as forms of eczema. A step had already been taken in this direction by Willan himself, when he named one of his species *eczema impetiginodes*; and our own labours for several years past have tended to the development of the same idea.*

The varieties, or, as he preferred to name them, species, of eczema admitted by Willan are *general* and *local*; the general varieties being only three in number; namely, *solare*, *rubrum*, and *impetiginodes*. *Eczema solare* corresponds with *eczema vesiculosum*; *eczema rubrum* with *eczema ichorosum*; and *eczema impetiginodes* with *eczema pustulosum*. His local varieties are the same as our own.

Hardy arranges the varieties of eczema in three groups, having relation to the *appearance*, the *figure*, and the *situation* of the eruption. The first of these consists of *eczema simplex*, *rubrum*, *fissum* (*fendillé*), and *impetiginodes*; the second, of *eczema figuratum*, *nummulare*, *sparsum*, and *diffusum*; the third of *eczema pilare*, *eczema capitis*, and the rest of the local varieties corresponding with our own.

In a tabular arrangement, the varieties of eczema admit of being grouped under three heads, in conformity with their pathological characters, or their appearance, their distribution, and their locality; the three groups being as follows:—

PATHOLOGICAL FORMS.

(Regular.)

Erythemosum	Ichorosum
Papulosum	Pustulosum
Vesiculosum	Squamosum

(Irregular Forms.)

Fissum	Edemosum
Sclerosum	Mucosum
Verrucosum	Neurosusum

* Vide "Diseases of the Skin;" and in a paper on "Eczema Infantile," read at the meeting of the British Medical Association in 1856.

FORMS OF DISTRIBUTION.

Universale
Figuratum
Diffusum

Nummularé
Marginatum

LOCAL FORMS.

Capitis
Facies
Aurium
Palpebrarum
Oris et labiorum
Axillarum
Mamillarum
Umbilicale
Inguinum

Pudendi
Perinei
Ani
Articulorum
Manuum et pedum
Dorsi manûs
Palmare et plantare*
Digitorum
Unguium.

ECZEMA ERYTHEMATOSUM is recognized by redness, thickening and hardening of the skin from infiltration of serum into its tissues, itching, and successive desquamation of the cuticle in laminæ or scales.

When this form of eczema is associated with other forms of the eruption, or when the patient has previously suffered from eczema and has a tendency to eczema, in other words, an eczematous diathesis, the diagnosis of eczema erythematosum is plain; but if it be a first attack, and is slight in its nature, like the instance we have already given as resulting from sunburn, it may be difficult to distinguish it from simple erythema. If, as is commonly the case, it is accompanied with papulæ, and gives out a serous moisture or exudation on rubbing or scratching, the case is an undoubted eczema erythematosum.

This form of the eruption is apt to occur upon the eyelids, behind the ears, around the pudendum, and, generally, in the flexures of the joints. It is the form which erythema in an eczematous constitution would naturally assume. From its proneness, in the latter stage, to perpetuate itself by desquamation, a tendency of all the forms, Hebra names it squamosum; but we prefer to distinguish the congestion of the early stage and slighter forms of eczema by the term erythematosum; reserving the term squamosum for the latter stage and more chronic and severer forms.

ECZEMA PAPULOSUM.—The association of papulæ with eczema is one of the commonest of its phenomena; sometimes they

enter into the composition of the eczematous blotches; sometimes they are found in the circumference around them, or dispersed more or less abundantly over the body and limbs, while eczema ichorosum holds sway in other parts; it is, however, the predominance of papulæ over the other pathological forms which especially characterizes eczema papulosum. In general eczema, and in eczema infantile, which also is frequently general, the papulous element of the eruption is very conspicuous; but it is nowhere more so than in the combined ichorous and papular eruption which takes possession of the back of the hands,—the lichen agrius of Willan, which, in other words, is an eczema lichenosum, or lichen eczematousus, or, more properly, an eczema papulosum et ichorosum.

ECZEMA VESICULOSUM (eczema solare of Willan) is the rarest of the forms of eczema, although the type of the vesicular eruption. It is most characteristically seen on the back of the hands of persons of lymphatic temperament who have been exposed to the heat of the sun's rays; and then presents itself as a confluent crop of minute vesicles corresponding with the pores of the follicles of the skin, and attended with more or less edema of the subcutaneous cellular tissue, and interstitial infiltration of the skin itself. Another common situation of its outbreak is the fingers, especially their palmar surface. From the thickness of the cuticle in this situation, the vesicles are indistinct, and the serous fluid collects beneath it in minute beads, and raises the cuticle in plates of considerable extent, hollowed upon the under surface into vesicular cavities. In this manner the cuticle may be raised off the greater part of the circumference of the fingers.

In the course of a few days, the serum of the vesicles is absorbed; the cedema of the corium and subcutaneous cellular tissue subsides, the cuticle dries and exfoliates, and the skin returns to its normal condition. Not unfrequently, however, the newly-formed cuticle is produced unhealthily, and is thrown off by desquamation in furfuraceous scales.

ECZEMA ICHOROSUM (eczema rubrum, Willan; eczema madidans, Hebra) is characterized by intense redness, denudation of the inflamed surface, more or less thickening from infiltration of tissue, and exudation of a colourless ichor or lymph, often in abundance, and sufficient to justify the term "madidans" applied

to it by Hebra. Eczema ichorosum may commence as an erythematous or as a vesicular form, and pass on to the more exal stage of exudative activity implied by the term ichorosum. an ichorous exacerbation may break out at any period of course of a chronic eczema, and recur from time to time during its existence. The ichorous discharge is not simply the effusion of serum from the congested vessels and tissues, but it is also altered secretion of the skin itself; and the unformed elements of the epidermis mingling with the ichorous discharge, give an opaque and mucous, and sometimes a muco-purulent character. The discharge is tenacious, often viscous, and forms, desiccation, a yellowish or greyish, and more or less brittle and spongy crust, which adheres firmly to the inflamed corium, and sometimes attains to considerable thickness. Not unfrequently at this stage of the eruption, the crust breaks up into plates of various size, and the muco-purulent secretion oozes up through the fissures. This is peculiarly the case on the scalp and on the face; on the scalp, because the crust is mechanically detained by the hair; on the face, because, from the difficulty of covering up, evaporation and desiccation are more active than in other parts.

Eczema ichorosum, therefore, presents three characters, which in it are more strikingly developed than in the other forms of eczema; namely, the redness of the inflamed corium, the copious exudation, and the consequent formation of an extensive and thickened crust. It must be borne in mind that the exudation is not the result of ulceration, as might sometimes be supposed from its muco-purulent character, but is chiefly derived from secretion. Indeed, in one form of eczema, namely, eczema intertrigo, there is often a copious muco-purulent secretion from the surface of the unbroken skin, with no other pathological change than erythema in a moderate degree.

The ichorous form of eczema is most commonly met with at the joints, as in the axilla, the elbow, and the ham; upon a part behind the ears; on the face; on the nipples; at the umbilicus and in the pudendal region. A characteristic form of the eruption in the latter region, and extending for a short distance down upon the upper and inner parts of the thighs, is well described by Willan under the head of Eczema rubrum.

ECZEMA PUSTULOSUM (eczema impetiginodes, Willan) is a more or less confluent eruption of small pyodermic pustules.

accompanying any of the forms of eczema, but is most frequently associated with eczema ichorosum. The pustular eruption must be regarded as an aggravation of the ichorous form of the disease, and is most commonly met with in regions exposed to an excessive degree of irritation, as the face and hands; in young persons, or persons of irritable temperament, or in persons considerably reduced in strength.

ECZEMA SQUAMOSUM represents the last period of the other forms of eczema, when the pimples have subsided, the exudation has ceased, and only the redness, the thickening from interstitial infiltration, and the desquamation remain; the desquamation no longer presenting the character of exfoliation, as in eczema erythematosum, nor crusts, as in eczema ichorosum; but of small thin scales, for the most part furfuraceous, or even farinaceous. Eczema may from the first present these characters, and in them, that is, in the redness, thickening, itching, and desquamation in small scales—we recognize *psoriasis*, the sequence of psora; and where the thickening of the skin is less, and the scales thinner and finer, *pityriasis*; the whole of these forms being, in fact, the chronic period of eczema.

ECZEMA FISSUM.—When the skin has been subjected for some time to inflammatory congestion, and has become thickened and condensed by infiltration into its tissues, it chaps and cracks with extraordinary ease: the mere stretching of the fingers will cause the skin to break, and a new pathological element is added to those previously noted in connection with the disease. Eczema fissum is a common accompaniment of eczema squamosum, and is most frequently met with where the skin is naturally the hardest and the densest; for example, the tips of the fingers, the joints of the fingers, the palm of the hand, the dorsum of the hand, and the wrists; but it may exist in the concavities or convexities of all the joints, or at the bottom of folds in any part of the skin; for example, in the angle of attachment of the ear to the side of the head, the nose to the face, or at the angles of the mouth.

There is a form of eczema squamosum of the palms of the hands, a *psoriasis palmaris eczematosa*, which is remarkable for the number and depth of its fissures; and in eczema infantile and chronic eczema in children, the fingers have sometimes the appearance of being almost severed through at the joints.

IRREGULAR FORMS OF ECZEMA.

ECZEMA SCLEROSUM.—When chronic eczema has existed for a very considerable time on some part of the limbs, the skin apt to acquire the hardness and toughness of leather; such patches are usually circumscribed in form, are somewhat elevated above the surface, are attended with occasional fits of itching, and throw off a dry and scaly scurf. They are commonly designated psoriasis, and are sometimes so like patches of diffused alphas, as to be likely to be mistaken for that eruption.

ECZEMA VERRUCOSUM is an aggravated form of eczema sclerosum; harder, harsher, and more prominent; rough on the surface, and resembling the surface of an old fibrous wart. This latter appearance seems due to hypertrophy of the papillæ in conjunction with general thickening of the skin. The pruritus of eczema verrucosum is sometimes unusually severe and troublesome, particularly in elderly persons.

ECZEMA OEDEMATOSUM.—Serous effusion and serous infiltration are common symptoms of eczema, particularly in lymphatic subjects; hence an oedematous state of the cutaneous and subcutaneous tissues is a not uncommon occurrence. It is important only in a therapeutical point of view, since the eruption rarely heals until the excess of serum in the tissues is dispersed.

ECZEMA MUCOSUM (INTERTRIGO).—Eczema sometimes presents itself as a mucous discharge, occurring between folds of the skin in infants or fat persons; and sometimes also in the axillæ, around the nipples, in the hollow of the umbilicus, in the groins, around the anus, and in the perineum. The mucous character is given to the secretion by the intermixture, with the serous exudation, of the newly-formed material of the epidermis.

ECZEMA NEUROSUM.—We have given this name to a very distressing association of neuralgia of the cutaneous nerves with eczema. The most painful case that we remember was one in which the pain occupied the axillæ; and from its severity weakened the nervous tone of an already weak heart. The patient was of Asiatic origin and highly irritable temperament.

FORMS OF DISTRIBUTION.

ECZEMA is rarely so general in its attack as to affect the entire body; but such cases are occasionally seen in the adult, and more frequently in the infant.

More commonly eczema occurs in patches of limited extent, and usually of a rounded or oval form,—*eczema figuratum*; but at other times is diffused,—*eczema diffusum*, over a considerable part of the body, as of the limbs or a portion of the trunk.

Its occurrence in small circular blotches, that in size and form have suggested the idea of pieces of money,—*eczema nummulare*, is not very rare. But a rarer form is one which we have named *eczema marginatum*, from the presence of an abrupt ridge which bounds it on all sides, and remains active and irritable when the skin within its area is in great measure restored to its natural state. Its common seat is the perineum, and the boundary-line extends for a considerable distance down the thighs in front, and upon the buttocks behind. We have met with this form of eruption chiefly in officers who have returned from India for their health, and sometimes it has been associated with circular rings or marginate blotches on other parts of the skin. The eruption is excessively itchy and very obstinate, and the patients have usually spoken of it as a disease common in India, and usually considered as a kind of ringworm. A gentleman lately under our care became attacked with it in Burmah, and called it the Burmese ringworm; it originated, he said, from the moist heat of the climate combined with the habit of frequent bathing.

LOCAL FORMS OF ECZEMA.

The LOCAL FORMS of eczema derive their chief interest from the existence of conditions favouring the development and permanence of the disease in the localities attacked, and also from the complications that are consequent on their position. Sometimes the complication is due to the *structure of the part*, as in *eczema capitis*, where the hair is a source of much inconvenience. Sometimes the aggravation proceeds from the unavoidable operation of *irritants* upon the diseased organ; for example, the atmosphere, in *eczema faciei, aurium, et manuum*; heat, moisture, and friction in *eczema axillarum, umbilicale, inguinum, pudendi*,

spoke of it in the plural number; that the scientific synonym of eczema was *psora*; that *psora* in its tamed, or exhausted, or chronic state, was known by two names, *psoriasis* and *pityriasis*; *psoriasis* being intended to distinguish its itchy state, and *pityriasis* its squamous state. Moreover, it must be mentioned for the more full understanding of these terms, that *pityriasis* was limited in its application to the scalp, while on any other part of the body the disease was called *psoriasis*. The Romans rendered the words *psoriasis* and *pityriasis* by their own term, *porrigo* (à porro, quia ut porrum in tunicæ involucra, ita cutis velut in squamas resolvitur); but as *porrigo* relates to the scaliness, and not to the itchiness of the disorder, its proper synonym is *pityriasis*. *Pityriasis* and *porrigo* must therefore be regarded as synonymous, the former being the Greek, the latter the Roman term, for the same form of disease.

ECZEMA FACIEI.—Eczema in all its forms may appear on the face; in its more active forms it occurs chiefly in infants and young persons; in its more chronic forms in adults. Eczema erythematosum and papulosum combined are common to infants, and have received the name of *strophulus*, or tooth-rash; and the same forms are sometimes seen in the face of delicate persons, and especially women, and are distinguished by the appellation of *gutta rosacea*.

Eczema ichorosum of the face, as it occurs in infants, gives rise to the formation of the crust known as *crusta lactea*, and is very apt to degenerate into eczema pustulosum (eczema impetiginodes), and not unfrequently, the pyogenic tendency being in excess, the case has the character of a true impetigo.* The crusts vary in degree of thickness, porosity, and colour; sometimes they are grey or brownish, sometimes yellow or amber-coloured, and sometimes, from admixture with blood, almost black. The yellow and amber-tinted crusts have gained for the eruption the euphonious appellation of *melitagra*† (*μελι*, honey; *γρα*, seizure). Of the chronic forms of eczema of the face, none is more obstinate than that which attacks the nose in adults.

* Vide Portraits of Diseases of the Skin; the plate marked Impetigo faciei is of this kind; and, adopting our present nomenclature, should be termed eczema pustulosum.

† Alibert.

ECZEMA AURIUM.—Eczema of the ears is either ichorous, pustulous, or squamous. In the former the pinna is very much swollen, the meatus is obstructed by the swelling, and the limpid ichor is seen to distil from the follicles in separate drops, and often with a rapidity that reminds us of a spring. The exudation quickly dries up into yellow crusts, under which accumulations of lymph or muco-purulent fluids are detained. The inflammation occupies both surfaces of the pinna, and spreads more or less extensively to the side of the head. In its squamous form the eczema is very obstinate; it occupies chiefly the fissure behind the ear. The secretions are dried up; but the skin is red and thickened, scaly, and often cracked.

ECZEMA PALPEBRARUM.—On the eyelids the eczema is usually met with in the erythematous and squamous form; but sometimes also, in young persons, has the ichorous and pustulous character, and is associated with conjunctivitis. This latter constitutes the disease termed *psorophthalmia*.

ECZEMA ORIS ET LABIORUM.—A squamous and fissured form of eczema is not unfrequently met with around the mouth and upon the lips of young persons. The eruption is unsightly and troublesome, and often, from the extension of the cracks, very painful, and is slow and obstinate under treatment. As a necessity, where there exist cracks and fissures (rhagades), the skin is more or less thickened and condensed by serous infiltration.

ECZEMA AXILLARUM is commonly of the ichorous kind, and sometimes erythematous. The ichorous exudation is due to the heat and moisture, and somewhat to the friction of the part; and the debility of the skin and the continuance of the irritation commonly give rise to enlargement of the superficial lymphatic glands, and not unfrequently to subcutaneous abscesses. Whenever eczema attacks the body generally in adults, the axillæ invariably participate in the disease. Such an affection is not unfrequently met with as a consequence of the exhaustion of the puerperal state, or of prolonged lactation.

ECZEMA MAMILLARUM is a painful, and often an obstinate complaint. It is usually ichorous, pustulous, and not unfrequently squamous, and deeply chapped and fissured. It is most painful and most intractable when it occurs during lactation.

ECZEMA UMBILICALE ET INGUINUM belongs to the kind of

eruption which results from the heat and moisture and friction which are the consequences of the apposition of folds of the skin, as in natural depressions like the umbilicus; in the fold between the mamma and the waist; the thick folds of the neck and abdomen in fat persons and infants; the fissure between the buttocks, or between the thighs and the scrotum or labia majora. This form of the eruption is usually termed *intertrigo*; it is sometimes erythematous, sometimes ichorous, and sometimes squamous. When ichorous, the exudation is apt to assume the mucous or muco-purulent character, and continues as a morbid secretion for a considerable length of time, or alternates with the squamous form for a long period. In the squamous form there are often cracks or rhagades of considerable depth and extent.

ECZEMA PUDENDI, PERINEI, ET ANI.—Eczema is especially a pruritic affection; but the itching is nowhere more strongly manifested than in the region of the pudendum, the perineum, and the anus, both in the male and in the female. In other respects it does not differ from the eruption in other situations, except perhaps in endurance; for it is in no situation more lasting and obstinate. In the deepest hollows there is always a moist secretion, and in the cleft between the scrotum and the thighs, and around the anus, there are frequently painful rhagades or fissures.

The scrotum is apt to be much torn by the nails, and that which before was a mere pruritus of the skin is rapidly converted into an erythematous and ichorous surface, tender and painful.

Eczema not unfrequently also attacks the deep furrows of the folds of the prepuce, and assumes a chronic character. It is erythematous, dry, squamous, and fissured; the skin is indurated and thickened, and is apt to contract around the glans, and occasion phimosis.

ECZEMA ARTICULORUM.—The thin skin of the flexures of joints is especially susceptible of eczema, and in an eczematous diathesis the eruption will always be found there, although it may be absent in other parts. It is commonly either ichorous or squamous, is accompanied with rhagades and fissures, and frequently bleeds during the movements of the limbs.

ECZEMA MANUUM ET PEDUM.—Eczema is always more invete-

rate and obstinate at the extremities of the body than elsewhere and is more frequently met with in the hands, which are exposed to the action of irritants of various kinds, than in the feet, which are sheltered from similar causes. A form of eczema, of the squamous and fissured kind, and produced under the influence of the irritation of the wash-tub, was called by Willan the *washerwoman's itch*; a similar form of eruption induced by dust and lime, he called the *bricklayer's itch*. The same eruption existing in the grocer and in the baker, was respectively the *grocer's itch* and the *baker's itch*. The erythema of the wrists and back of the hands which comes on in cold weather, and after a while becomes chapped and scaly, the so-called *chapped hands*, is in its latter stage a chronic eczema—an eczema squamosum et fissum.

The influence of the sun's rays upon the back of the hand has already been mentioned; and the illustration is an interesting one, inasmuch as it is that which suggested to the mind of Willan his definition of a vesicular eruption. But as we have already seen, it is also the best illustration that can be adduced for the purpose of showing the faultiness of his system. The same cause, namely the sun's rays, which in one case will produce an eczema solare, will in another occasion only an erythema and in a third a lichen solaris; and as it would be unphilosophical to admit in these different appearances three separate diseases we are constrained to embrace the whole under the more appropriate designation of eczema; namely, eczema erythematosum, papulosum, and vesiculosum. In this form of eruption, there is another element present that must be noted: in eczema erythematosum there is probably no swelling; in eczema papulosum there is a little swelling; but in eczema vesiculosum there is swelling to the extent of oedema, because this form of eruption is most apt to occur in a lymphatic constitution, in which there is an excess of serous fluids, and consequently all the material necessary for an effusive eruption.

ECZEMA DORSI MANUS.—Eczematous eruption in this situation is generally circular in its form,—eczema figuratum, and presents itself either as a cluster of pimples (lichen agrius, Willan), or as a red and thickened and uneven patch, that is commonly termed psoriasis. The patches are very itchy, and when being rubbed, exude a quantity of serous lymph; sometimes

the squamous stage they are more or less chapped; and sometimes pour out a little blood as well as lymph. Occasionally, these patches extend to the knuckles, and are accompanied with cracks which are painful and difficult to cure.

ECZEMA PALMARE ET PLANTARE.—In the palm of the hand the eczema squamosum constitutes one of two forms of psoriasis palmaris which it is important to distinguish; the other being a syphilitic affection. The eczema palmare presents the usual characters of the squamous form of the disease; its dryness, its scabiness, the thickening and hardening and contraction of the skin, and its long and deep cracks in the lines of motion. The contraction of the skin is often so great that rupture seems to be its only relief; and we are led to feel that, painful as is the remedy, the previous state must have been far less endurable. Eczema plantare is less frequent than the palmar form, on account of the protection which is afforded to the feet by their usual coverings.

ECZEMA DIGITORUM ET UNGUIUM.—Eczema on the fingers sometimes assumes the vesicular form, but more frequently is squamous, and accompanied with rhagades or cracks, which one while take the direction of the wrinkles of the joints, and another while cross longitudinally the tips of the fingers. The thick cuticle of the palmar surface of the fingers is generally raised in laminae, through which dark globules indicating the effused lymph are seen; but on the sides and back of the fingers true vesicles are formed; and in the thin skin of the clefts of the fingers the vesicles have a conical instead of the semi-globular form.

When the eczematous inflammation extends to the walls of the nails, the secretion of the nails is interrupted, they become discoloured, brittle, ragged, and uneven, and take on a morbid character,—eczema unguium.

DIAGNOSIS.—The distinctive characters of eczema, its physiognomy, so to speak, are, redness, with more or less disturbance of the cuticle; sometimes it is raised into pimples, sometimes into vesicles, and sometimes it is broken up in lines or in blotches, and an ichorous lymph oozes from the crevices or weeps from an abraded surface; lastly, the skin may be red, coarse, thickened, and in a state of desquamation, without any exudation whatever. Of all these signs, exudation is the most pathogno-

monic and next to exudation, desquamation, and a cracked and broken surface.

CAUSE.—We have already announced that the predisposing cause of eczema is debility; and that the debility in question is of four kinds—nutritive, assimilative, nervous, and local. The *predisposing cause* in chief is subject to prior causes, which are called *remote predisposing causes*; and between the acting predisposing cause and the active operations of the disease, or the *proximate cause*, there exist intermediate or *exciting causes*. The nature of the remote predisposing causes may be gathered from the following list; namely:—

Hereditary diathesis, strumous diathesis, weakly parentage, vaccination, dentition, eruptive and malarious fevers; errors of diet; errors of air, exercise, and clothing; vicissitudes of cold, heat, and moisture; ungenial climate; transition of seasons; excessive or rapid growth; sexual excess; deranged digestion; deranged menstruation; uterine, reproductive, and puerperal derangements; overstrained mental and physical labour; anxiety, fatigue, and affliction; nervous shock and fright; gouty and rheumatic diathesis; constitutional and organic disease; general cachexia; and hæmorrhage. The *exciting causes* may be judged of by the consideration of those which give rise to the local affection, and are as follows:—Cold, heat, moisture with cold, moisture with heat, errors of clothing and bedding, friction, mechanical and chemical irritants, and varicose veins.

PROGNOSIS.—Eczema presents itself in such an infinite number of degrees, that the prognostics of the disease must be determined chiefly by the powers of constitution of the patient. It is not in itself grave; but as it always indicates the presence of a *causa morbi* in the system, it is right to infer that the patient cannot be restored to perfect health until that *causa morbi*, whatever it may be, is removed. For the same reason, eczema is sometimes an indication of what is popularly termed a “break-up” of the constitution, and is never to be looked upon lightly: it is commonly not the disease, but the mere symptom of the disease under which the patient labours, and will get well without trouble when the patient is restored to health.

TREATMENT.—The treatment of eczema offers two indications; firstly, to cure the system; secondly, to cure the local disease;

and these objects are to be attained by constitutional and local treatment.

Our *constitutional treatment* will necessarily be influenced by our perception of the cause of the disease. We have laid it down as an axiom that the cause is debility; but is it nutritive debility, or assimilative debility, or nervous debility? In all, there are certain general indications to be fulfilled; namely, to remove irritating ingesta from the alimentary canal; to regulate the secretions; to regulate the diet. Then will follow the special indications raised by the special forms of debility.

In nutritive debility, our special remedies are, good and sound food, cod-liver oil, chalybeates, tonics, and especially arsenic.

In assimilative debility, our special remedies are, mild purgatives, saline aperients, and tonics; with a moderate, wholesome, and regular regimen. And when assimilation is restored, then we may command the tonic and nutritive powers of arsenic to remove the cutaneous complaint.

In nervous debility, tonics, and especially neurotonics, are our chief instruments; quinine, iron, and above all, arsenic.

Let us take a case of eczema infantile, as illustrating nutritive debility. We have seen that the diet is wholesome, probably the mother's milk; we have seen that the bowels are regular; if they be not so, we have directed that they should be watched, and an occasional aperient administered; we prefer one grain of calomel, rubbed down with one grain of white sugar into an impalpable powder, but we have no objection to a teaspoonful of castor-oil, or syrup of senna, or a little fluid magnesia. Well; all being so far regulated, diet, and medicine to control the general functions, and no contra-indication being apparent, such as diarrhoea or bronchitis, we proceed at once to our CURE, which we administer in the following fashion:—

R Vini ferri	℥ iss.
Syrupi simplicis	3 iij.
Liquoris potassæ arsenitis	3 j.
Aquæ puræ	℥ ij.
Misce; fiat mistura.	

℥ a drachm for a dose, with meals; the drachm giving two minims of the solution of the arsenic.

To the proper administration of this remedy there are certain

necessary injunctions: it *must* be administered with the meals, the best time being the middle of the meal; and the rule applies to all ages; it is *best* to administer it in one drachm doses, and without the addition of water; and it *must* be left off if it occasion, or even be suspected of producing, any unpleasant symptoms; for example, nausea, loss of appetite, colic, or prostration of power. In the latter case, its use should be suspended for three or four days, or for a week, and then it may be resumed as before, in the same or a smaller dose.

If these instructions be complied with, there cannot but be one result, namely, CURE; and often, speedy cure; and whether the cure be speedy or slow, the remedy may be steadily continued, so long as it give rise to no unpleasant symptoms, until the cure is actually attained. For infants under two years we prescribe one minim the dose, three times a day; from two years upwards to seven, the dose may be two minims; from seven to fourteen, three minims. At all ages we prefer to begin with two or three minims to test the susceptibilities of the patient, and then, if desirable, we increase the dose. Five minims is a maximum dose, and only admissible in alphas, for which arsenic is the specific remedy.

Let us in the next place take a case of eczema in the adult, originating in assimilative debility, and occurring at the time of life so fruitful in that form of debility, say fifty; we regulate the digestive organs and secretions; we advise a regular and moderately generous diet; and bearing in mind that debility is our great enemy, we prescribe a mild aperient, such as the sulphate of magnesia, with quinine and nitric acid; or a bitter, such as gentian, orange-peel, or calumba with nitro-muriatic acid, and a mild aperient pill of colocynth, blue pill, and henbane; or we may see reason to prefer the trisnitrate of bismuth with liquor cinchonæ and infusion of orange peel; or, soda, tincture of rhubarb, and infusion of calumba. In a word, we temper a mild but efficient aperient with a tonic; and we continue this treatment until the tongue has become clean, the appetite restored, the secretions wholesome, and the tone of the system invigorated. Sometimes our patient will return gradually to health without the adoption of other means. But if, the general health being greatly improved, a lingering debility still remains behind, and the eruption continues obstinate, we then

have recourse to more potent tonics, such as the citrate of iron and quinine, or the great remedy of all, arsenic. In the latter case, the formula may remain the same as that already prescribed; the commencing dose of the liquor potassæ arsenitis being two minims three times in the day, and rising gradually and cautiously to four minims. It must be remembered when prescribing arsenic, that time and small doses are more curative than larger doses continued for a shorter period, and that, to insure a course of some duration, the dose must of a necessity be small. The instructions as to the continuance or suspension of the remedy are to remain in force as in the previous case, and any ordinary indications, as to the secretions, to be met with appropriate means.

Let us now take the third case, one of nervous debility. Here less attention is required to be devoted to the digestive organs, the secretions, and the diet; the immediate indication is tonic, and especially neuro-tonic; the citrate of iron and quinine, or, possibly, from the very first, the ferro-arsenical mixture may be administered. Arsenic is a neuro-tonic, and seems to act specially on the peripheral and cutaneous nerves, improves their tone, and renders more active the nutrition and restoration of the skin.

We may mention in this place two other salts of arsenic, of great value, and which offer a means of changing the form of the remedy when such a change is thought desirable. We refer to the acid solution of arsenic, the liquor arsenici chloridi, the old solutio mineralis de Valangin, and the arseniate of soda. The liquor arsenici chloridi is half the strength of the liquor potassæ arsenitis, and the best form for its administration is as follows:—

℞ Liquoris arsenici chloridi	
Acidi hydrochlorici diluti	ss 3ij
Syrupi simplicis	℥ss.
Aque distillatæ	℥ij.

Misce; fiat mistura.

A fluid drachm a dose; to be taken with meals three times a day; and to be discontinued if it disagree.

The acid solution of arsenic seems to be especially suitable at the period of meals, when the contents of the stomach have naturally an acid reaction, due to the presence in the gastric juice, of hydrochloric acid.

The arseniate of soda is useful for administration as a powder, well rubbed down with sugar, and also given with a meal; the dose is $\frac{1}{16}$ to $\frac{1}{12}$ of a grain three times a day, and with the same precautions as for the other forms of arsenic.

LOCAL TREATMENT.—The local treatment of eczema calls to its aid the general principles of surgery: causes of irritation are to be removed; inflammation and pruritus are to be subdued; excoriated and weeping surfaces are to be soothed; crusts and sordes are to be cleared away; dry and desquamating parts are to be softened; and irritable and chronic states of the tissues to be stimulated to a more healthy action.

To relieve the heat and dryness and pruritus of eczema erythematosum and papulosum, the best remedies are a lotion containing one or two drachms of liquor plumbi, an ounce each of spirits of wine and aqua laurocerasi, and six ounces of simple water; or, an emulsion of bitter almonds with two drachms of dilute hydrocyanic acid to the half pint; or, if something more stimulant be needed, seven ounces of emulsion of bitter almonds with an ounce of spirits of wine and eight grains of the bichloride of mercury. The disadvantage of lotions is, that their benefit is temporary, and after their immediate effects have passed away, the irritation returns. In this case a slight smear over the surface with the benzoated ointment of oxide of zinc with spirits of wine or spirits of camphor (3j ad 3j) may be more successful.

In the vesicular, the ichorous, and the pustular forms of eczema, the heat, tension, and itching may be relieved by fomentations of warm water, a decoction of oatmeal, or one of poppy-heads. When all crusts and sordes have been removed by these means, the eruption should be carefully dressed with strips of lint spread thickly with the benzoated ointment of oxide of zinc,* and then carefully rolled up with the elastic cotton bandage; when nicely packed in this way, it may be left undisturbed for one or two days; and when the dressing is removed, the diseased surface should be carefully wiped and dressed, and rolled up as before. Sometimes the inflamed surfaces are too irritable to bear this application; in which case

* We always add spirits of wine to this ointment in the proportion of one drachm to the ounce; and whenever reference to this ointment occurs, this addition is to be understood.

they may be treated by means of the water dressing, or may be covered with a sheet of cotton wool retained in its place by strapping; or, if there be not too much exudation, by dredging with starch, or a mixture of starch and oxide of zinc or calamine, covering with dry lint or cotton wool, and rolling as before. A cold starch poultice, made by introducing starch jelly into a muslin bag and binding on the part, is often an agreeable and soothing application, and may take place by the side of water-dressing, and the linseed poultice for the softening of crusts, previous to their removal and the subsequent treatment by the strips of lint spread with the oxide of zinc ointment, and elastic roller.

When the disease has passed from its more active middle stage into its third or chronic stage, it presents two new features that call for attention; one is, *irritability*, that manifests itself one while by itching, and one while by repeated exacerbations; the other is *sluggishness*. Both of these conditions require similar remedies, and those remedies are stimulants. The itching may be subdued by washing with the juniper-tar soap, and dressing subsequently with slips and roller as above. Where the sluggishness is considerable, the soap may be rubbed upon the eruption and left to dry on the surface, and either washed off in the morning or dressed at once with the strips and roller. It is in this condition of the disease that stronger remedies of every kind are called for; dressing, for example, with one of the mercurial ointments (nitrate, nitric oxide, or ammonio-chloride), with tar ointment, tar and sulphur ointment, and especially with the juniper-tar* ointment (3j—3ij ad ʒj).

When the chief feature of the local affection is pruritus, we find the juniper tar in all its forms, namely, soap, lotion, and ointment, invaluable. The lotion is made by mixing an ounce each of the oleum juniperi pyrolignici, sapo mollis, and alcohol, with five or ten ounces of water. This lotion, if need be, may be sponged over the whole body; while for local purposes a formula given to us by Hebra, composed of equal parts of oleum juniperi, sapo mollis, and alcohol, is an admirable remedy. Besides tar, as an antipruritic remedy, we may have recourse to stronger lotions of hydrocyanic acid, and especially of bichloride of mercury, than those previously advised.

* The oleum juniperi pyrolignici, or *huile de Cade*, is here referred to.

CUTANEOUS MEDICINE.

is nothing that brings a weak and irritable and angry eczema that does not seem to quite know whether to be exudative, or otherwise rebellious, so speedily to its one of these stronger remedies; it seems to act the part of tonic, and substitute sthenic action for asthenic action.

For the former we can deal, the latter is utterly unmanageable. The principle on which stimulants, or, as we have named them, local tonics, act; a solution of nitrate of silver in ether (gr. j—xx ad ʒj), is excellent for this purpose, as are other remedies in turn in different cases; and sometimes at periods of the same case.

One of the most chronic forms, such as the eczema scleroma verrucosum, eczema fissum of the palm of the hands and fingers, and, indeed, in any of the more obstinate forms of the affection, an application introduced by Hebra is of great value, and, indeed, indispensable; namely, a solution of calomel in oil of sweet almond (3j—3iv ad ʒj). When this solution is pen-

etrated into the tough and thickened skin, a copious exudation occurs, and the disease is moved back at once from the second stage of the eruption, and becomes amenable to the milder remedies suited to that stage. It would seem as if the vesicles were too weak of themselves to throw out the lymph with which they are interstitially infiltrated, and when this is effected for them by artificial means, they are by degrees restored to their normal state. After the sponging, or rather sponging—for a hair pencil is quickly dis-posed of—the solution—has been performed, the exudation is removed, and the excoriation dressed with strips and previously directed.

The infiltration which occurs in eczema cedematosum is best treated with strips and roller; but if there exist also infiltration and swelling of the corium, one of the weaker potash solutions should be used. In eczema mucosum, the inflamed surface should be washed with tar soap, and afterwards pencilled with the arsenical solution; and, as soon as the exudation is conquered, the surface should be dusted over with the pulvis amyli et oxydi calaminæ præparatæ. In eczema neurosum, we have remedies so potent in relieving irritability and pain, as the solution of nitrate of silver in nitric ether (gr. x ad ʒj), and the solution of the juniper tar. In eczema marginatum,

the best remedies are washing with the juniper-tar soap; sponging with the lotion of the bichloride of mercury in emulsion of bitter almonds, with spirit; and pencilling the margins with the solution of nitrate of silver in nitric ether; or frictions with the unguentum hydrargyri nitratis.

In eczema capitis the hair constitutes a complication, and when the means of cleanliness are not easy of access, it may be necessary to remove it: this is a practice, however, which we have never occasion to adopt; soap, especially the juniper-tar soap, tepid water, the comb, the brush, these are all-sufficient means for removing the worst kinds of sordes and crusts; and with these it must be done even when the hair is shortened or thinned. After drying the scalp, it should be thoroughly anointed with a diluted pomade of the nitric oxide of mercury ointment (\mathfrak{z} ss ad \mathfrak{z} iss) and left for twelve hours. The combing and brushing and anointing may be repeated every twelve hours; but unless the head have been previously neglected, or the accumulation of crusts excessive, the ablution will not require repetition.

When eczema capitis has entered the squamous or chronic stage, and has become a pityriasis, then the treatment must be somewhat more stimulant; for example, daily matinal ablution with the juniper-tar soap; active friction with the nitric oxide pomade; and plentiful combing and brushing; the intention of this treatment being to remove sordes and scurf, and restore healthy nutrition and tone. In this case, the combing and brushing and inunction must be practised twice in the day.

For the face, the ears, the axillæ, the nipples, the umbilicus, the groins, and the limbs generally, the benzoated ointment of oxide of zinc is the best application; and in the chronic stages, ablution with soap, previously to the ointment dressing. For the eyelids, and the more delicate parts of the pudendum, an ointment of acetate of lead (gr. v ad \mathfrak{z} j) or a cerate of camphor of the same strength, will be found useful. For the pudendum, perineum, and anus, when the itching is very troublesome, relief may be obtained by the application of the diluted ointment of juniper tar (\mathfrak{z} j ad \mathfrak{z} j), after ablution with the juniper-tar soap; while on the hands and fingers it may be necessary to have recourse to the strongest mercurial ointments, after previous ablution with the juniper-tar soap. In our remarks on the treatment of eczema in general, we have already pointed out the

advantage of careful dressing, clever bandaging, and in the very chronic forms of the complaint, particularly on the palms of the hands, the necessity of arousing a new action by the strong stimulus of a potash solution. The treatment of *eczema unguium* must be directed to the skin of the walls of the nails, and the surrounding integument.

PSORIASIS AND PITYRIASIS.

The terms *psoriasis* and *pityriasis* are so familiar and so convenient in cutaneous nomenclature, as to be almost indispensable; and if they be employed in their proper signification, and that signification be strictly adhered to, there can be no objection to their use. Both are forms of *eczema*, of that later period which is termed *eczema squamosum* or chronic *eczema*; one is reserved to distinguish squamous *eczema* of the scalp, namely, *pityriasis*; and the other, squamous *eczema* of the rest of the body, namely, *psoriasis*.

PSORIASIS is the proper term for that state of the skin in which the integument is red, coarse, thickened, wrinkled or smooth, brittle, dry, itchy, and desquamating. The squamæ are sometimes light and furfuraceous, sometimes thick and laminated; sometimes easily detached, and sometimes more or less closely adherent. It may possess these characters almost from the first, having simply passed through the preliminary erythematous or congestive stage; or they may be the sequelæ of the exudative and encrusted stage. In one situation, at least, the *eczematous* eruption always assumes the characters of *psoriasis*, namely, the palm of the hands,—*psoriasis palmaris*.

PITYRIASIS is a chronic *eczema*—a *psoriasis*—limited to the scalp. Its characters are almost identical with those of *psoriasis*; any differences that may exist being referrible to a difference of organization of the skin. In *pityriasis* the integument is less wrinkled and brittle than in *psoriasis*, and the desquamation finer and lighter, being sometimes branny or furfuraceous, and sometimes mealy or farinaceous. Like *psoriasis*, it may follow immediately upon *eczema erythematosum*, without any intermediate stage: the exudative stage being, as it were, consumed in the morbid secretion of the cuticle, which converts it from

a tough and horny layer into a pulverulent desquamation.

In this way pityriasis becomes the type of an erythematous congestion of the skin, accompanied with a fine furfuraceous or farinaceous desquamation—a more superficial affection than that which is conveyed by the term psoriasis; and in this sense we apply it to small circular patches covered with farinaceous scales that are not uncommonly met with on the faces of children, particularly of light complexion—a kind of pityriasis figurata.

Willan and Bateman distinguish four varieties of pityriasis; namely, pityriasis capitis, rubra, versicolor, and nigra. *Pityriasis capitis* is an erythematous desquamation of the heads of infants and old persons, which is prone to degenerate into eczema, or, in their language, into "porrigo." They also include in the same term the little broken clots of sebaceous substance which are so frequently seen on the heads of young infants. *Pityriasis rubra* is an eruption of elderly persons, and a slight form of "psoriasis diffusa." *Pityriasis versicolor* is an affection that will be treated of among discolorations of the skin, under the name of Chloasma; and *pityriasis nigra* is an eczema erythematosum of "children born in India and brought to this country."

We may therefore regard pityriasis as a convenient term for distinguishing a more superficial congestion of the skin than that of psoriasis; although, in truth, a milder form of psoriasis associated with a lighter and thinner kind of desquamation.

LICHEN.

As eczema is the type of the vesiculæ of Willan, lichen is the type of his order Papulæ. But, as it has been already shown that vesicles are not necessary to constitute an eczema, and that eczema is a papular as well as a vesicular eruption, we have now only to treat of those papulæ which may fairly be considered apart from eczema, and which may be regarded especially as a papular eruption. In fact, we purpose to assemble under this head only those affections which are not admissible into the family of eczema, under the comprehensive definition of that disease already given, and which are obviously different in

their nature. We hope in this way to avoid the confusion which Willan himself, as well as more modern authors, have introduced into this group. By lichen we intend to convey the idea of papulæ which are *dry* in their nature throughout their entire existence, and are never associated with an exudation of any kind; whereas, all papulæ which at any period of their course are affected by exudation, or are associated with exudative disease in any other part of the body, should at once be turned over to eczema, the mother of moist pimples and exudation.

On this principle it is clear that we must banish lichen agrius from the family of lichens and restore it to eczema, to which, from its exudative nature, it obviously belongs; indeed, this transfer has been anticipated by the term *lichen eczematousus*, which has already been attached to it; the eruption being, according to its characters, an eczema lichenodes, or, more simply, an eczema papulosum et ichorosum.

And also with the view of simplifying the group, we shall consider under the head of lichen the strophulus of Willan, or rather such of the varieties of strophulus as are true to the characters which he has laid down as the type of the affection. It is obvious that several of his varieties should be regarded as forms of eczema infantile rather than true papulæ, and have been retained in consequence only of their occurrence in infants; strophulus being especially an eruption of children. But as a lichen strophulus, a lichen of infants and children, strophulus will occupy its proper place in the lichenous group, and especially by the side of lichen urticatus, which it resembles in several respects.

The term lichen is derived from the Greek *λεχων*, a tree moss, and in the plural number *λεχωνες* was probably used as the popular appellation of those clustered groups of pimples which at the present time we term lichen circumscriptus and lichen agrius. It doubtless took its origin from the lichens of the vegetable kingdom. The lexicons define it as a disease of trees, one author designating the olive, another the fig, as the subjects of its attack, and disputing to which the term properly belongs; Theophrastus declaring that it was the olive, while the moss on the fig he termed *psora*.

LICHEN is an eruption of papulæ, resulting from congestion of the vessels of the follicles of the skin, and some degree of

infiltration into the tissues of the walls of the follicles. The pimples are conical in form, minute, more or less deeply red, transparent at the summit, and itchy, and may be compared to the normal asperity of the skin, termed cutis anserina, although from the presence of vascular congestion and infiltration, they are necessarily larger and more prominent than the latter. They are solid, and contain no fluid, the transparency of their points being due to the conical wedge of cuticle which occupies the aperture of all the follicles; and when scratched they give forth a drop of blood, followed by an oozing of a minute drop of serum.

When the pimples of lichen are dispersed singly over the skin, they subside by degrees, and are followed by a slight exfoliation, corresponding with the summit of the papule. When they occur in clusters, they are accompanied with redness, and on the decline of the redness, are succeeded by a laminated exfoliation of the cuticle. When, however, they have been rubbed or scratched, each papule becomes covered on the summit with a small scab, which is sometimes thin and greyish, sometimes thick and amber-coloured, or brown, and sometimes, when arising from desiccated blood, almost black.

The pruritus of lichen is of the hot and tingling kind, and sometimes very severe. Like eczema, lichen is non-contagious, and is unattended with special constitutional symptoms.

The varieties of lichen are founded on the manner of distribution of the eruption, on its symptoms, on its cause, and on its situation. The distribution of the pimples is sometimes dispersed and general, as in lichen simplex; sometimes aggregated, as in lichen circumscriptus, lichen circinatus, and lichen gyratus. The symptoms are sometimes remarkable for the pungency of the itching and tingling, as in lichen urticatus, or for the colour of the pimples, as in lichen lividus. Heat of climate gives a distinction to lichen tropicus; and situation to lichen pilaris, and to lichen strophulus.

In a tabular form we should arrange the varieties of lichen as follows:—

Lichen simplex	Lichen strophulosus
“ dispersus	“ urticatus
“ circumscriptus	“ tropicus

To which may be added as sub-varieties :—

Lichen pilaris
" lividus

Lichen circinatus
" gyratus

Lichen lividus and pilaris, appertaining in chief to lichen simplex; and lichen circinatus and gyratus, to lichen circumscriptus.

LICHEN SIMPLEX.—In the simplest form of lichen, the papulæ are more or less thickly set or dispersed over the surface of the body. They are of moderate redness, pretty uniform in size, and attended with considerable itching and tingling. When they subside, they are followed by a moderate degree of laminated and furfuraceous desquamation. When the eruption is scanty but general, they present more or less of a corymbose arrangement like the blotches of measles; and in some parts of the body this disposition is remarkable. It is also to be noted that in some situations the papulæ are larger than in others; for example, on the face and upon the limbs. Sometimes the extent of the eruption is exactly bounded by the limits of an article of dress, as in a well-marked case of lichen simplex illustrated in one of our Portraits of Diseases of the Skin.

LICHEN DISPERSUS, VEL PRURIGINOSUS.—Instead of being thrown out in crops and distributed more or less abundantly on parts or on the whole of the skin, lichen sometimes presents a dispersed character; the papulæ are solitary and scattered; the commoner seats of election being the front of the forearms, the lower part of the abdomen, the inside of the thighs, and the ankles. The papules are hard to the touch, only slightly red at first, but more conspicuous after they have been scratched, and especially remarkable for a severe and teasing itching, the eruption bearing no proportion in appearance to the annoyance and suffering which it occasions. This variety may be regarded as representing especially the pruritic element of lichen, while lichen simplex represents its papular character: hence, we have termed the eruption lichen pruriginosus. It is the commonest, although not the typical form of lichen, and is frequently met with as a sequel of scabies.

It appears to be more than probable that this eruption is the same as that described by Willan under the name of *prurigo mitis*.

LICHEN CIRCUMSCRIPTUS is an aggregated form of the eruption,

In which the papulæ are elevated in considerable numbers, and constitute one or more patches of a circular or oval form. The remarkable characters of the eruption are the close aggregation of the pimples, and the abrupt line by which they are separated from the adjoining skin. They are met with chiefly on the chest, the hips, and the limbs; and when they subside, the skin remains for some time rough, wrinkled, and furfuraceous.

LICHEN STROPHULOSUS.—The strophulus of Willan is clearly a lichen, modified by its development on the sensitive skin of infants and children, instead of the firmer and less irritable skin of the adult. The papulæ are large as compared with those of the adult; they are sometimes of a vivid red colour, sometimes only reddish; at other times whitish, with a reddish areola; and sometimes white and smooth. They are accompanied with pruritus, subside in a period varying from a few days to a few weeks, and are followed by a furfuraceous desquamation of the cuticle.

Willan describes five varieties of this eruption, namely, *Intertinctus*, *Albidus*, *Confertus*, *Volaticus*, and *Candidus*.

Strophulus intertinctus, the red gum or red gown,* is distinguished by papulæ of a vivid red colour, interspersed with red dots (probably congested follicles without prominence), and large erythematous patches. Sometimes, he says, there are vesicles on the hands and feet, but the fluid is absorbed without rupture. The rash occurs for the most part on the cheeks, the forearms, and the back of the hands; but is sometimes distributed generally over the body.

Strophulus albidus is a sub-variety of *strophulus intertinctus*; the papulæ being hard, minute, whitish, and only slightly elevated, and sometimes encircled by a halo of redness. They are met with chiefly on the face, neck, and breast.

Strophulus confertus (rank red-gum, tooth-rash) seems to belong to eczema infantile rather than to lichen. The papulæ are more extensively distributed, and less vivid in colour than those of *strophulus intertinctus*. They are sometimes developed in patches of large size, and sometimes the cuticle cracks, and they present the characters of intertrigo. Sometimes the eruption fades and disappears in a fortnight, and sometimes its duration is prolonged by repeated recurrence for two or three months.

* Evidently a mispronunciation of "gum."

Strophulus volaticus is a rarer form of the eruption, and belongs to the group of lichen circumscriptus. It breaks out in circular patches or clusters of papulæ, which turn brown in four days and disappear. Other patches appear in succession, and the disease acquires a duration of three or four weeks.

Strophulus candidus is a hybrid that would perhaps be better omitted altogether. The papulæ are large, smooth, and shining, and have no redness around their base. They would seem to be whiter, smoother, larger, and more passive than the papulæ of *strophulus albidus*. They have been met with on the shoulders, the upper arms, and the loins; and they disappear in about a week. Willan saw them once associated with *strophulus confertus*, appearing on the face and neck; and, in another instance, he found them on the arms of a child three years and a half old, who was cutting some double teeth, and likewise had *porrigo larvalis*, or, in modern language, *eczema ichorosum* and *pustulosum* of the face.

LICHEN URTICATUS is a natural transition from lichen *strophulosus*, inasmuch as it is an eruption which belongs especially to children; begins with inflamed spots, which are succeeded by larger pimples than ordinary lichen, and is accompanied with severe pruritus. This form of lichen was first described by Bateman, and is extremely well marked; the spots at their first appearance resemble gnat-bites or bug-bites, and remain inflamed for a day; after which the redness and pimple subside. When, however, they are rubbed or scratched, the pimple becomes more prominent, and bleached like the wheal of urticaria, and instead of subsiding, remains for several days; and if the scratching be such as to remove the head of the papule, a small drop of blood escapes, and dries up into a minute black scab. As the eruption is successive, a few spots appearing each night, and occasionally also in the day, the body and limbs become spotted all over with pimples in every stage of progress. They are commonly single in their outbreak, but occasionally form, here and there, a small cluster.

The term *urticatus* is warranted not only by the occurrence of muscular spasm in the pimple, which gives it a bleached appearance similar to that of the wheals of urticaria, but also by the severe, and frequently intense tingling and itching, which destroy sleep, and often affect seriously the child's health. The

pruritus is commonly set up by the heat of bed, and sometimes by mental emotion. The eruption is obstinate in its nature, and often lasts for many months.

LICHEN TROPICUS, or prickly heat, is the usual form of lichen as it attacks Europeans in hot climates. Dr. Winterbottom describes it as consisting "of numerous papulæ, about the size of a small pin's-head, and elevated so as to produce a considerable roughness of the skin. The papulæ are of a vivid red colour, and often exhibit an irregular form, two or three of them being in many places united together; but no redness or inflammation extends to the skin in the interstices of the papulæ.

"The eruption is diffused over those parts of the body which are usually covered, as the neck, breast, arms, legs, and inside the thighs. It does not often appear on the face, excepting on the upper part of the forehead, contiguous to the hair; neither is it ever found in the palm of the hands, sole of the feet, nor on the hairy scalp. The number of the papulæ is much increased by wearing flannel, or clothes too warm and thick for the climate. When perspiration is very copious, small vesicles, containing a limpid humour, are often intermingled with the prickly heat, more especially on the breast and about the wrists; but they terminate in scales, having no disposition to ulcerate, though violently scratched. A troublesome itching attends the prickly heat, and prevents sleep during the night. There is likewise a frequent sensation of pricking, as if a number of pins were piercing the skin. This often takes place suddenly after drinking a dish of tea, or any warm liquor, so as to cause the person affected to start from his seat. The eruption is in general stationary, and appears equally vivid in the day and in the night. It does not leave one part and arise on another, unless the former be much exposed to cold, and the latter be heated by additional clothing, or by friction. An increase of heat, indeed, in all cases, produces a greater number of papulæ. They sometimes disappear on a sudden, and return again as suddenly, without any obvious cause; but whenever the eruption continues for a length of time, the papulæ throw off minute scales, and are succeeded by a fresh crop, no vestiges being left in the skin. The prickly heat is in general considered as a salutary eruption; whence we are cautioned not to repel it from the skin by cold or

other external applications. Such a repulsion cannot, however, be easily effected; it is certainly not produced by bathing, which has been hitherto thought highly prejudicial. A vivid eruption of the prickly heat is a proof that the person affected with it is in a good state of health, although its absence does not always indicate the contrary. The sudden disappearance of it which frequently happens is rather an effect than a cause of internal disorder, as of fever, or of any slight complaint of the stomach; in the latter case, a temporary stimulus applied to the stomach, as by spirits, tea, or other warm liquids, has the power of restoring the eruption. Its appearance on the skin of persons in a state of convalescence from fevers, &c., is always a favourable sign, indicating the return of health and of vigour.

"Various means have been employed to alleviate the itching and tingling of the prickly heat; the favourite remedy at Sierra Leone is the juice of lime rubbed on the skin, which, however, has no considerable effect. I have found it of most advantage to use a light cool dress, and to avoid the drinking of warm liquors."

LICHEN PILARIS.—We have seen that lichen has its pathological seat in the follicles of the skin; we are therefore prepared to find a modification of the papules bearing relation to the size or closeness of distribution of the follicles. Thus, on the trunk of the body the papulæ are small; on the limbs they are coarser; while on the scalp, where the largest follicles exist, papules are almost wholly wanting. On the limbs, and particularly on the lower limbs, we sometimes meet with papules which surround the hairs at their escape from the follicles, so that the hairs have the appearance of growing out of the papules: this is lichen pilaris; and its occurrence is evidently due to a physiological cause. Lichen pilaris is therefore nothing more than a lichen simplex developed on the limbs, and especially the lower limbs, in relation with the abundant hairs and coarser follicles which are found in that region.

LICHEN LIVIDUS.—In peculiar states of the constitution, the circulation in the papules is so sluggish that the venous change of the blood has time to take place in the congested vessels, and the papules have consequently a purple or livid hue. This alteration of colour is most commonly met with in the lower extremities where the papules are usually of large size; and we have

seen it in persons enjoying an average state of health, and surrounded by the comforts and even luxuries of life. It is not necessarily a disorder of the squalid and the ill-fed; although sometimes associated with the petechia of purpura and other indications of a cachectic habit. Lichen lividus is therefore a lichen simplex accompanied with a torpid circulation through the cutaneous vessels.

LICHEN CIRCINATUS is a modification of lichen circumscriptus, occasioned by the subsidence and dispersion of the papules in the middle of the patch; and commonly by the extension at the same time of those of the circumference. The patch is thereby converted into a ring, with a border of varying breadth, and may run on to a considerable size.* At other times the ring is broken at one point, and the extension takes place irregularly by the remainder of the segment; or the patch runs on in a longitudinal direction to a considerable length, and is more or less tortuous in its course.

This latter is the LICHEN GRATUS, or convoluted form of the eruption, and is a mere modification of lichen annulatus; both lichen annulatus and gyratus being simply alterations in figure of lichen circumscriptus.

DIAGNOSIS.—Lichen, being a pimple, cannot be confounded with any other pathological form; if, associated with the papular eruption, there be other pathological forms present, such as erythema, vesicles, disruption of the cuticle, or exudation, the case is no longer one of lichen, but an eczema papulosum; although, a few scattered vesicles on parts of the skin, while the chief extent of the eruption is papular, is not inconsistent with the diagnosis of the eruption as one of lichen. When, with the papular eruption, there are indications of the presence of the *acarus* in the cuticle of the hands, the case is scabies; and where the itching is violent and intense, the pimples are wanting, and other indications exist of an unhealthy nutrition and innervation of the skin, the disease is prurigo.

* The description of papulæ by Celsus harmonizes remarkably with this description. "There are," he says, "two kinds of papulæ," that is, papular eruption; "in one, the skin is roughened, with very small pustules (*i. e.* pimples); is red, and slightly eroded; the eruption being somewhat smoother in the middle than at the circumference, and spreads slowly. This kind begins for the most part as a circular eruption, and spreads by the border."

CAUSE.—The cause of lichen is identical with that which gives rise to eczema, namely, *debility*; the difference in the form of the eruption being due to constitution and temperament. Where the temperament is lymphatic, eczema will be developed; while in a bilious, and especially in a nervous temperament, the eruption will be lichen; the essential differences between the two being the difference of *moist* and *dry*; the latter being associated with irritability of the nervous system. The kinds of debility also resemble those of eczema, namely nutritive, assimilative, nervous, and local; and the remote predisposing causes: cutaneous irritability, the sequel of scabies; deranged digestion; coldness of season and climate; errors of diet; errors of air and exercise; the eczematous diathesis; vaccination; dentition; and excessive lactation. With regard to strophulus, Bateman remarks that it arises from an "irritability of the skin at that period of life when the constitution" is easily "disturbed by irritation, either in the alimentary canal, the gums, or other parts."

PROGNOSIS.—Lichen is by no means serious, and is only of importance from the irritable pruritus by which it is accompanied, and which, by destroying rest, tends to weaken the system and to produce general disorder of the economy. It is usually a milder malady than eczema, particularly the local forms, and of shorter duration, lasting, commonly, only a few weeks, but sometimes prolonged for several months, and even for years. The time of life at which it is most frequently met with is childhood and maturity; but it is also observed at other periods. Lichen strophulosus is an eruption of infants, and lichen urticatus is chiefly met with in young children.

TREATMENT.—The constitutional treatment requires the mildest aperients to regulate the digestive organs and secretions, followed by bitters and the mineral acids, by chalybeates or by quinine. In chronic cases, arsenic, as prescribed for eczema, will generally effect a cure.

The internal remedies recommended by Bateman for strophulus are, gentle laxatives, when any feverishness is present, followed by decoction of bark, or chalybeates; of the latter, he particularly favours the tartrate of iron. Doubtless had the superphosphate been in use in his day, he might have given it a preference, as being peculiarly suitable to children. To his

internal treatment he joins, a carefully selected diet, proper exercise, and the use of ablutions with tepid water, plain and with the addition of milk. He likewise expresses an old-fashioned dread of repercussion of the eruption from exposure to cold draughts of air, or the use of cold water, and he suggests that in such an event we should administer some slight cordial, such as a few drops of sal volatile, and apply a blister externally. At the present day we prefer the stimulus of mustard to that of cantharides for the skin of infants, or frictions with a mildly stimulating liniment, such as cajeput oil with soap liniment.

The *local treatment* of lichen calls for the use of ablutions with the juniper-tar soap, tepid bathing, and anti-pruriginous and moderately stimulating lotions, such as an emulsion of bitter almonds with hydrocyanic acid, or with bichloride of mercury and spirits of wine. But the most certain and powerful anti-pruriginous lotion is one composed of the pyroligneous oil of juniper, spirits of wine (of each an ounce), and water (six ounces). The latter remedy has been found very successful in lichen urticatus. When the lichen circumscriptus is obstinate, it may be dispersed by gentle friction with the ammonio-chloride, or nitric oxide of mercury ointment.

IMPETIGO.

IMPETIGO is a Latin term, derived, according to Pliny, *ab impetu, impetu agens*, acting with force, with severity, and conveying the idea of a more energetic form of inflammation than that which accompanies the two preceding affections, eczema and lichen. Eczema, as we have seen, is essentially an exudative, a lymphatic, or a moist affection, an affection in which the exuded material is a serous lymph; lichen is a dry affection, without exudation, but with an increment of pruritic irritation; while impetigo must be regarded as representing the pyogenic or purulent element. The student will easily appreciate these distinctions, and they will serve to illustrate three of the eight types of the Willanese classification.

These terms are purely arbitrary, and therefore arises the greater necessity of making them definite. Eczema conveys in its meaning no idea of exudation; lichen, no idea of solidity

and pruritus; and as little does impetigo any notion of pus-formation. Moreover, in eczema we find all the three affections combined: with exudation in one part, there are lichenous papulæ in another, and impetiginous pustules in a third; and to express the combination we have invented the compound terms, eczema lichenodes, or eczema papulosum, and eczema impetiginodes, or eczema pustulosum.

If we turn to our authorities, we discover another argument for precision of definition. The impetigo of Celsus is throughout an eczema; he gives us no hint of any distinction founded on the presence of pus. The impetigo of Willan, although founded on the notion of pus, fails to make the pustule definite, and embraces every form of eczema in which a purulent or muco-purulent secretion prevails. Hence the necessity of representing these distinctions each by a substantive malady; namely, eczema, the impersonation of sero-lymphatic exudation; lichen, the impersonation of the solid, and dry, and itchy papulæ; and impetigo, the impersonation of pus, or of a purulent secretion; and establishing an identity between eczematous and vesiculous, or more properly, exudative; between lichenous and papulous; and between impetiginous and pustulous.

There remains, however, this further and very important distinction, that eczema, being the mother disease, embraces in itself all the papulæ and pustulæ which may chance to be associated with it; whereas, the term lichen is to be strictly limited to papulæ without vesicles, exudation, or pustules; and impetigo, to pustulæ without vesicles, exudation, or papulæ. By this arrangement we gain precision; and we gain confidence in the use of the language of our science, a very important consideration.

IMPETIGO is an inflammation of the skin, accompanied with the formation of pus, which raises the cuticle into small pustules. The redness is commonly vivid; there is some swelling; the pus is light-coloured and of the kind termed sero-purulent; but may present every tint of yellow in its hue; and dries up into a greyish or amber-coloured crust. The crust remains adherent for some days, and at its fall, leaves the skin red and shining, but without any permanent mark or scar. The eruption is non-contagious, like its congeners eczema and lichen, and is not attended with constitutional symptoms.

The absence of cicatrix marks the fact of the superficial operation of the inflammation, and affords us evidence that the pus is not generated at the expense of the vascular tissues of the skin, but is simply a morbid transformation of the newly-formed cells of the rete mucosum. Indeed, it would be incorrect to regard the pustule of impetigo as a true pustule, such as that of ecthyma or variola, which is the result of a destructive alteration of the cutaneous tissue, and consequently leaves behind it a permanent cicatrix; but as a mere modification of the serous vesicle, a vesicle, in fact, containing a sero-purulent fluid. Hence, it is no uncommon phenomenon to see one of these sero-pustules of larger size than usual, surrounded by several coherent vesicles, which invest it in a circle, and form together a small composite patch. The reading of such an appearance is briefly, an energetic burst of inflammatory action in the production of the primary or central pustule, and a weakening of energy in the formation of the secondary, the circumtangent, and subordinate vesicles.

The pustule of impetigo is of the kind termed *psyracium*, and in the plural *psyracia* (*ψυχρα ὑδρακία*, *frigida guttulæ*), that is, a pustule or pustules produced with little heat or inflammation, commonly aggregated or confluent, and, after the discharge of their pus, pouring out "a thin watery humour, which frequently forms an irregular incrustation."

Impetigo is an affection indicative of a lower grade of vitality than either eczema or lichen, and is met with most frequently in those of a cachectic habit, and particularly in children and women. It is rare as compared with the former affections, and is more commonly seen amongst the poor, and in workhouses, than in the middle rank of society.

The varieties of impetigo are two in number, namely, impetigo figurata and impetigo sparsa; the former indicating a state of aggregation of the pustules, and the latter their dispersion. These Willan added three others, namely, erysipelatodes, scabida, and rodens, of which the first and second evidently belong to eczema, and the third is a syphilitic ulceration. An impetigo capitis, admitted by ourselves, must also be transferred to eczema capitis.

IMPETIGO FIGURATA appears in the form of clusters of small pustules developed upon a more or less inflamed and swollen

ground, and forming a circumscribed and often circular patch. There may be several of these patches developed on the trunk of the body or limbs; but they are most frequently observed on the face, and particularly around the mouth. They are often chronic, and often successive in their occurrence.

IMPETIGO SPARSA is the scattered form of the eruption. The pustules appear singly or in smaller clusters than in impetigo figurata, and are dispersed over the whole body, being not uncommonly met with on the hands and feet of children.

The impetigo sparsa very commonly presents on certain parts of the body, and especially upon the hands and feet of children the characters before referred to of a central pustule with a surrounding circle of confluent vesicles or phlyctenæ. This form is so frequent that we have thought it deserving of a separate designation, and have named it *impetigo phlyctenodes*.

DIAGNOSIS.—The only pustule with which impetigo can be confounded is ecthyma; the characters of distinction, however, are sufficiently obvious. The small congregated sero-pustules of the former standing upon a slightly swollen but not much inflamed ground, are in striking contrast with the large, well-formed, deep yellow, solitary semiglobes, with inflamed and hardened base, of the latter; the former a psudopustule, the latter a phlyctenous pustule; the former disappearing without leaving a trace behind, the latter leaving a cicatrized pit of greater or less permanence.

CAUSE.—The cause of impetigo, as of the other eczematous affections, is debility; the debility being chiefly of the nutritive kind, and the most prominent of the remote predisposing causes, general cachexia, bad ventilation and drainage, errors of diet, and the after-irritation of scabies.

PROGNOSIS.—Impetigo is not a serious affection; but as it betokens constitutional debility, a pyogenic diathesis, and a tendency to cachexia, might possibly lay the foundation of a more grave disturbance of health, if not speedily and effectually checked.

TREATMENT.—The indications for treatment are the same as those which are applicable to the previous forms of eczematous affection, and the remedies of a similar class: the regulation of the digestive and secreting organs when they are found to be faulty, and the succession of bitters with the mineral acids, cha-

lybeate with the mineral acids, quinine, and where the disease assumes a chronic character, the ferro-arsenical mixture, or one of the other forms of that mineral.

The *local* treatment should be similar to that for eczema: saturnine lotions if there be much heat, and subsequent dressing with a cerate of acetate of lead; or the benzoated ointment of oxide of zinc with spirits of wine; lastly, in the squamous stage of the eruption, ablutions with the juniper-tar soap and slight inunction with the benzoated ointment of oxide of zinc, or one of the mercurial ointments considerably diluted (3 ij ad ʒj). Where ointments are unsuitable, we must trust to lotions, and dredging with a desiccative powder, such as oxide of zinc and calamine, of each one drachm, diluted with six drachms of powder of starch.

SCABIES.

SCABIES—derived from *scabère*, to scratch—is the Latin representative of Psora, our modern Eczema; but is at present used in a much more limited sense; no longer the head of a group, but, comparatively, an insignificant member.

Scabies is an eczema, dependent, not upon a constitutional cause, like the preceding diseases; but upon a local and special cause—the presence in the cuticle of the *acarus scabiei*.

The *acarus scabiei* in this country, and amongst cleanly people, has its habitat only in the hands; in foreign countries it is said to be more generally distributed, and to be found in other parts. Being present, therefore, only in the hands, the eruption which is thrown out upon the rest of the body is the result of an irritation communicated through the nerves, in other words, a sympathetic irritation, and the kind of eruption will be influenced by the constitution and temperament of the subject. In a person of nervous temperament, it may consist of redness or erythema, and papulæ; in a person of lymphatic temperament, besides erythema and papulæ, there will be vesicles also; and in a child of full habit and weakly powers there will be, in addition to erythema, papulæ, and vesiculæ, a crop of superficial pustules of moderately large size thrown out upon the hands and feet.

The eruption is found in different parts of the body to be vari-

ously distributed; it is always present, and usually abundant, upon the hands; next in quantity it is found in the flexures and upon the front of the forearms; then on the lower half of the abdomen; upon the upper and inner part of the thighs; upon the penis and podex; and, in children, upon the feet.

The habitat of the acarus is indicated by a furrow in the cuticle. The furrow has necessarily a ragged edge, and if it be followed with the eye, it will be seen to slip below the surface of the cuticle, like a tunnel, and run on for some distance further. The upper wall of the tunnel is arched, and presents a series of convexities that suggest the idea of a string of beads, and, at the extremity, the tunnel terminates in a kind of circular dome, and is larger than the rest of its area. The tunnel is the cuniculus or burrow of the acarus, and under the semi-globular dome at the end of the cuniculus the little animal will be found. If this part be closely inspected, there will be seen shining through the thin dome of cuticle, and corresponding with the most distant segment of the dome, a reddish-brown crescent; this crescent is the chytinous covering of the head and fore-legs of the animal, and, frequently, a whitish, pearl-like globe may be seen occupying the rest of the dome: this is the abdominal segment of the animal.

The cuniculus is always more or less curved and tortuous, and frequently reaches half an inch in length. Sometimes the furrow begins at a circular or oval space which represents the base of a destroyed vesicle, and sometimes a vesicle may be found in the course of the cuniculus; or the cuniculus may be lifted up by a vesicle, and the acarus seen at the end of its cuniculus and within the cuticular wall of the vesicle; but it is never met with in the vesicle itself; the vesicle being the result of the irritation caused by the burrowing of the acarus. It is common to find a vesicle in the course of the cuniculus or closely adjoining, and frequently we are led by the presence of the vesicle to seek for the furrow and tunnel just described.

The cuniculus of the acarus is usually found in the more protected parts of the hand, and where the cuticle has a medium thickness; for example, and first, between the fingers, along the sides of the fingers, then along the ulnar border of the hand, in the flexure of the wrists, and lastly, in the palm of the hand. On the wrists and in the palm of the hands the burrows usually take the course of the lines of motion, and diverge from point

to point. In children, the palms of the hands are more frequently selected than other parts; and in them the cuniculi are also detected in the soles of the feet. In France and Germany the acarus is said to be found also on the penis and podex; but we have never seen a cuniculus in either of these situations in any of the patients who have come under our care.

To obtain a specimen of an acarus, all that is needful is to raise the semi-globular dome of the extremity of the cuniculus with a needle-point, and insert the point of the needle into the hollow; the animalcule generally clings to the needle, and may be seen attached to it when the needle is withdrawn, and may then be transferred to a slide of glass and placed under a microscope, or examined with an ordinary lens. Professor Hebra told us that his plan of securing an acarus was to pinch up a piece of the cuticle enclosing the end of the cuniculus with a pair of fine scissors and then transfer it to a slide; he, moreover, informed us that he selected the skin of the buttock for this operation.

The acarus scabiei, under a lens of low power, has the appearance of a minute white and shining globe, and this appearance is increased by the habit of the animal, of depressing its head and lifting its hinder or abdominal segment when it walks. Observed with a higher power, it is seen to bear a very close resemblance to a round-shaped tortoise; it has a carapax above and plastrum beneath, and from the anterior border of the carapax there project forwards a cylindrical head and two pairs of very strong legs or arms. The head and arms are encased in a reddish-brown chytine, and it is this chytinous case that gives the appearance of a dark crescent to the front segment of the animal when seen through the transparent dome at the end of its cuniculus. On the head are several pairs of short hairs; on the back, numerous short spines, which project backwards, and on the arms, and sides of the carapax, also several pairs of long hairs; but the longest hairs are directed backwards from the posterior segment of the carapax; the longest of all being derived from the posterior legs. Viewed upon its under side, which is flatter than the carapax or dorsum, the head is seen to be provided with strong jaws; the four anterior legs are found to be jointed and very strong, and disposed like the forelegs of the mole, while the four hinder legs are weak

and diminutive, and scarcely reach to the border of the abdomen. All the legs are besides furnished with a fistulous tarsus, and a fan-shaped and lobulated foot, provided with suckers like the foot of the house fly.

The construction of the animal is adapted to its habits of burrowing and onward progression ; and its retreat from its burrow can only be effected by turning completely round. It is this necessity which very probably gives the varicose or beaded appearance to the tunnel of the cuniculus. Naturalists have recently discovered a difference between the sexes of the animal; the male is somewhat smaller than the female, and is adapted to a more active locomotion. He is accredited with the habit of roving about on the surface of the cuticle, while the female lives at home in her burrow, depositing and protecting her eggs. Their food would seem to be the softer and more vitalized deeper layers of the cuticle, the rete mucosum. The largest acarus that we have seen measured about $\frac{1}{8}$ of an inch in length by about $\frac{1}{16}$ of an inch in breadth, and was therefore not far removed from the circular form. The ova are oval in shape, and are produced in considerable numbers.

The pruritus of scabies is somewhat different from that of other pruriginous complaints ; it is a kind of tickling itching, and the rubbing and scratching employed to relieve it are said to be pleasurable. King James I. has the credit of having declared that none but kings and princes should have the itch, for the sensation of scratching was so delightful.

The itching in scabies seems to depend upon the operations of the acarus, and subsides when the little creature takes its rest ; it is most troublesome when the patient is warmed by exercise, and especially when the body is heated by the warmth of bed-coverings. This fact renders it probable that the operations of the acarus are carried on chiefly during the night : by night, and when the patient is in bed, it is supposed to quit its burrow and wander in search of more suitable accommodation ; and this is the period also, when it is most easily transferred from one person to another : hence scabies is more certainly acquired by sleeping with an affected person than in any other way.

Scabies is one of the very few contagious diseases ; it is the only one that is so in the group of eczematous affections ; and it

is contagious, simply by the transfer of an *acarus* or some of its ova from one person to another. Sometimes the transfer is direct, as in sleeping with an infected person; sometimes it is indirect, when it passes from one individual to another through the agency of bed-clothes or body-clothes, through linen sent home from the wash, through the handling of objects belonging to a scabious person, or through using the same closet.

The *varieties* of manifestation of scabies, we have stated to depend upon the constitution or temperament or age of the patient, and not upon any difference in the disease itself, or in its cause. There are consequently no real varieties of scabies. Willan and Bateman, however, describe four varieties of the disease, founded on the popular "epithets of *rank, watery, pocky, and scorbutic* itch," under the names of "*papuliformis, lymphatica, purulenta, and cachectica.*" In the first of these forms we recognize the dry pimples of lichen; in the second, the vesicles of eczema; in the third, simple superficial pustules; while the fourth is intended to include those not unfrequent cases in which all the forms, namely, erythema, papulæ, vesiculæ, pustulæ, and squamæ, are present together.

When all these forms of eruption are present together, the *papule* are found most abundantly on the back of the hands, on the forearms and flexure of the elbows, on the abdomen, and on the inner side of the thighs. The *vesiculæ* are chiefly met with between the fingers, along the ulnar side of the hands, in front of the wrists, and on the back of the hands; in the last-mentioned situation the vesicles are minute and semi-globular, while between the fingers they are mostly conical. Sometimes several vesicles become confluent, and when broken, give out an oozing of a viscous serous lymph; and occasionally about the wrists there are larger vesicles, in fact bullulæ, or small phlyctenæ. *Pustulæ*, when they occur, are generally developed on the back of the palm of the hands. The assemblage of all these forms is most commonly observed in young children; in whom is also, at the same time, a hot and damp state of the hands and feet from perspiration. In the vesicular or lymphatic itch there is also, not uncommonly, a slight degree of cedematous swelling of the back of the hands.

It may seem remarkable that so purely local a cause as the presence of a minute animalcule in the cuticle in simple proxi-

mity with the sentient skin, should be capable of giving rise to a reflex irritation that is manifested in the most distant parts of the body; such, however, we believe to be the case; and the known physiological phenomena of the nervous system warrant the conclusion. We have in our mind the following example: a gentleman complained of pruritus of the skin between the little and ring finger of the right hand; we looked at it and detected the cuniculus of an acarus; there seemed to be but one; he had no eruption on any other part of the hand, but he complained of a few pruritic pimples situated on the upper part of the same arm, some on the right flank, and some on the upper part of the right thigh. There was no eruption whatever on the left hand or left side of the body. Being a friend, I suggested to him the experiment of rubbing a little sulphur ointment into the site of the cuniculus between the fingers, and to do nothing for the rest of the eruption; he did so, and the general as well as the local irritation was immediately allayed.

We have remarked that in some countries, and it may happen also in this country, if the animalcula be abundant, the acarus has been seen in the thin cuticle of the prepuce, and on the podex. It is supposed to reach these situations from the hands; the eruption common on the buttocks of children is also supposed to be derived from the hands of the nurse; again, on the mammæ of nursing females, the agent of transmission is believed to be the hands of the infant.

DIAGNOSIS.—The student must familiarize himself with the discovery of the acarus, as upon this, and this alone, the diagnosis of scabies depends. A roughness and pimply eruption between the fingers, and upon the wrists, is always suspicious; but suspicion does not become certainty until we discover the cuniculus and its inmate. Not even does the presence of a crop of vesicles, conical or otherwise, and oozing a viscous and colourless lymph, afford proof of scabies without the animalcule. If we have before us a pimply eruption upon the forearms, the flexures of the arms, the abdomen, and the inside of the thighs, the case is in all probability scabies; but without the proof afforded by the acarus we are unable to say more than that the disease is lichen pruriginosus, and to all appearance a scabies.

It is important to remember that the acarus scabiei is capable of setting up an eruption of the skin at a distance from the part

We wash the entire skin, once or twice daily, with sulphur soap; the hands more frequently; we rub the simple sulphur ointment into the hands and wrists night and morning; at night we leave it on the skin, and recommend the patient to wear gloves in the morning, after the soap ablution, a smaller quantity of ointment suffices, which we allow to be wiped away after having been well rubbed in; and any remains of greasiness removed with sulphur powder. This plan we continue for a week, and then stop; but we recommend the continuance of the soap ablution for a second week.

The lichenous eruption on the rest of the body we sponge with lotions of hydrocyanic acid in emulsion of bitter almond; with emulsion of bitter almonds, containing the bichloride of mercury, one grain to the ounce; or we anoint with the berberis-zinc ointment of oxide of zinc, with spirits of wine or spirit of camphor. And if the sulphur soap ablutions be at all irritating to the skin, we substitute the juniper-tar soap.

Internally, we prescribe a powder, containing sublimed sulphur, bitartrate of potash and white sugar, of each ten grains (for a child, gr. v.), night and morning; and with the simple object of creating an atmosphere of sulphur, both internally and externally, about the patient, and presenting to the acarus a vapour destructive of its life.

Moreover, as precautions when simple and easy of application cannot be over much multiplied, we recommend the sprinkling of sulphur powder in the bed of the patient, and its dispersion amongst his clothes. Strong odours, also, are destructive of the acarus, and these, particularly the essential oil of camomile, we combine with the ointment. There are many other remedies recommended for scabies, but none so good or so efficient.

Reviewing our plan as above detailed, it will be observed that we advise its continuance for a week, whereas the acari are often destroyed by a second inunction; but it must be remembered that the ova remain, and if the sulphur treatment were too soon suspended, some of the ova might escape, and the disease, in a short time, be renewed. Again, the treatment neither requires isolation, nor suspension of the ordinary intercourse of life, and therefore may be tolerated for a longer period than a more violent method, or than the older treatment, which prescribed inunction of the whole body with the compound sulphur oint-

ment night and morning, and bed between blankets for several days or for a week.

Sometimes a sulphur-vapour bath, or a lotion of the pentsulphide of calcium, may be preferred to the inunction; but we know of no plan of treatment better suited to the purpose than that which we have already detailed. This treatment is founded on the presumption that the acari are limited in their presence to the hands; or, in children, the feet as well as the hands; but if it be ascertained that they are also present in other parts, then the sulphur inunction must be extended equally to them.

The secondary eruption of scabies, the lichen pruriginosus, must be treated on the same principle as lichen in general: antipruriginous, or gently stimulating lotions; the benzoated ointment of oxide of zinc; and, internally, laxatives and mild tonics, with the mineral acids.

GUTTA ROSACEA.

GUTTA ROSACEA has heretofore been confounded with acne, under the name of acne rosacea; we shall endeavour to show that the two diseases are essentially different. Gutta rosacea is the red and pimply face of the mid-period of life, a disease of inflammatory congestion, and depending on constitutional causes; acne is a disorder of secretion, of nutrition, of growth, and an accompaniment of youth and the development of the cutaneous tissues.

Gutta* rosacea is an inflammatory congestion of the skin of the face, accompanied with erythematous patches, red spots, papulæ, sometimes small and sometimes large, pustules, and tubercular thickening of the integument. It is chronic and progressive in its course, and the greater or less development of its pathological signs constitutes its varieties; for example, gutta rosacea erythematosæ, papulosa, tuberculosa, and pustulosa.

Gutta rosacea makes its beginning with simple flushes of the face, which are transient; they are produced under the influence of the stimulus of food, commonly at dinner, and sometimes of emotion. These flushes, at first occasional, soon become habitual, and, frequently repeated, they give rise to a permanent

* A drop or spot.

distension of the vascular plexus of the skin, and the red face is established. This is the erythematous stage of the affection, and in conformity with the degree of congestion and the energy of the circulating power, we find certain obvious modifications. At first, and in persons of firm tissue and healthy muscular system, the cutaneous circulation is vigorous, and the colour of the skin the scarlet tint of arterial blood; after a time, months probably or years, or in a person possessing soft tissues and weakly muscular power, the circulation is languid, the blood undergoes its venous transformation in the skin, and the tint of the redness is changed to crimson, purplish, or roseate, and occasionally also becomes livid. It is the frequency of this alteration of colour that has suggested the term "*rosacea*," applied to the disorder; but it will be seen that the roseate hue is by no means a necessary accompaniment of the affection, and, when it exists, represents an advanced stage of the morbid process.

We have previously directed attention to the deep circulation of the skin, the follicular circulation, as compared with the surface circulation; this difference is conspicuous in every congestion of the skin, and is sometimes very striking in *gutta rosacea*. Congestion of the follicular circulation is known by a dotted or punctated appearance in the skin (*gutta rosacea punctata*), each dot corresponding with a separate follicle; and the presence of these dots is the indication of a commencing development of papulæ (*gutta rosacea papulosa*), the papulæ having the same origin and structure as those of eczema or lichen. An accumulation of papulæ at some one point produces the more extensive rising known as a tubercle (*gutta rosacea tuberculosa*), and the formation of pus in the summit of a papule or tubercle constitutes the pustular form of the disease, or *gutta rosacea pustulosa*.

Gutta rosacea is attended with sensations of heat, burning, itching, and, in the pustular form, lancination and throbbing. When the pimples are rubbed or scratched, a little serous lymph oozes from their summit and forms a small crust; but there is never the amount of exudation which exists in eczema, and, as a consequence, never the same thickness of crust.

Gutta rosacea, in a chronic form, necessarily occasions considerable thickening of the skin of the face, and in aggravated cases produces those unsightly blotches and tubercles which have been noted by Shakespeare:—

"His face is all bubukles and wheelks and knobs, and flames of fire."

From its occasional association with habits of intemperance, it has been termed "Bacchia," and the tubercles "grog-blossoms" and "carbuncles." And when the nose is the seat of the disease, the whole organ is swollen, and the end of the nose thickened and hypertrophied, marked by large superficial veins, often very blue or livid, and studded with yellow pustules and ugly crusts.

The characters already described bring gutta rosacea into the category of eczematous affections; namely, the kind of eruption; its tendency to exudation, although in a slight degree; its development in the form of a rash or an eruption; and we may add, its dependence on constitutional causes. We have frequently seen it associated with eczema existing in other parts of the body, and in persons possessing the eczematous diathesis. It is essentially a chronic affection, lasting, when not restrained by treatment, for years. It has no constitutional symptoms of its own, and is obviously non-contagious.

It is more frequent than would be imagined, occurring in private practice once at least in every ten patients: it is nearly six times more frequent in the female than in the male, and is commoner in the unmarried female than in the married.*

DIAGNOSIS.—Gutta rosacea may be mistaken for an eczema erythematosum and papulosum, for a lichen, or for an impetigo; but the general history of the affection will determine its identity; in a practical point of view, the blunder is not of much consequence, for the treatment is the same. With regard to acne, it is to be borne in mind that the latter disorder is one of torpid glandular action, accumulation of altered sebaceous substance in the gland and its follicle, and inflammation resulting from mechanical pressure and irritation caused by the impacted matter. Moreover, it is commonly associated with other indications of disordered function of the sebaceous glands and follicles, and occurs in young persons, beginning at the age of puberty. Whereas gutta rosacea is a disease of middle life, has none of the sebaceous complications referred to above, is primary instead of secondary in its inflammatory congestion, and is

* *Vide* An Enquiry into the relative Frequency, the Duration and Cause of Diseases of the Skin.

the consequence of general ailment and disorder of the economy.

CAUSE.—The cause of gutta rosacea is similar to that of the eczematous affections already enumerated, namely, *debility*; debility, which is nutritive, assimilative, nervous, or local, or all, in greater or less proportion, combined. The eruption is excited by reflex irritation, originating in the nervous plexuses of the stomach and organs of digestion, and also in the reproductive and uterine system. And the remote predisposing causes are as follows:—uterine, reproductive, and puerperal derangements; deranged menstruation; languid vital power; anxiety, fatigue, and affliction; loss of rest; deranged digestion; abuse of alcoholic drinks; ungenial climate; errors of air, exercise, and clothing; constitutional and organic disease; rheumatic diathesis; hæmorrhage; eruptive fevers; rapid growth; sexual excess; excessive mental and physical labour; deficient food; adult vaccination; syphilitic cachexia, &c. A common local cause is neglect of the use of soap in the daily matinal ablution.

PROGNOSIS.—Not grave; but as the local disease implies a derangement of general health, in which digestion and nutrition, as well as physical comfort and mental ease are concerned, it cannot too soon be relieved; and were there wanting an additional reason for prompt treatment, it might be found in the fact, that the disease is all the more difficult of removal when thoroughly confirmed by time and neglect. And this is the more apt to be the case from the fact, that gutta rosacea is too frequently looked upon as a deformity rather than a disease, and as affecting vanity rather than life.

TREATMENT.—There is no disease more amenable to treatment than is gutta rosacea, when properly understood. As a disease of debility, the first indication is to improve the tone of the system and restore the general health; as a preliminary to the tonic course, the digestive organs will require to be regulated, the secretions to be set right; and when the ordinary tonics, bitters, mineral acids, and chalybeates, have exhausted their good effects, we may have recourse to the unfailing specific influence of arsenic.

The *local* treatment should be mildly stimulant and soothing, and afterwards more stimulating. Our plan is to prescribe daily, and sometimes twice daily, washing with the cold water and the

juniper-tar soap. If the local irritation be increased by these means, we omit the evening ablution, and apply the benzoated oxide of zinc ointment, or smear the ointment gently on the face after the evening ablution. Then, if the congestion of the skin be improved by this process; we follow it up by a stronger stimulant, the compound hypochloride of sulphur ointment. The ointment should be rubbed into the pimples with moderate friction at bedtime, left on the skin during the night, and washed off in the morning by the usual ablution with the juniper-tar soap and cold water. This plan is unfailing in success; but if it be found too severe, we modify it accordingly, and have recourse to milder cutaneous stimulants, such as the bichloride of mercury in emulsion of bitter almonds.

CHAPTER IV.

ERYTHEMATOUS AFFECTIONS.

THE Exanthemata of Willan are naturally divisible into two groups,—the eruptive fevers, namely, rubeola, scarlatina, and variola, of which we treat in our tenth group, under the designation of Zymotic affections; and those superficial congestions of the skin which take erythema as their type,—the erythematous affections, and form the subject of our present chapter. The exanthemata and erythemata are the *efflorescences* and *rashes* of the skin; the former term being most appropriately rendered by efflorescence, a blossoming out like flowers, which the little corymbi of rubeola might be taken very fairly to represent; while the latter term, erythemata, derived from *erythron* to redden, may be equally well rendered by the word rash, or inflammatory blush.

The definition of exanthema given by Willan is, with a slight modification, applicable also to erythema; namely, “superficial red patches, variously figured, and diffused irregularly over the body, leaving interstices of a natural colour, and terminating in cuticular exfoliations.” The modification relates to the words “leaving interstices of a natural colour:” these words have in view the general efflorescence of rubeola and scarlatina, and also of a member of the present group, namely, roseola; the rest of the erythemata being local, and requiring no such limitation.

The leading distinction between the erythemata and the eczemata is the difference of relative importance of the local and constitutional disorder in the two kinds of affection. In eczemata the principal interest attaches to the local affection; in erythemata the constitutional disorder is of most consequence, the local manifestation being often a mere symptom of derangement of the stomach and digestive organs, and following, like the eruptive fevers, a more or less regular order of development. Thus, in several of the forms of erythema, in erysipelas, and in roseola, the beginning of the attack is announced by nausea, prostration of power, and headache: these symptoms are fol-

lowed by fever; on the second or third day of the general illness the rash makes its appearance, goes on increasing for four or five days, and then gradually declines. At the outbreak of the rash there is commonly a marked relief to the constitutional symptoms, and in some instances the latter quickly disappear. Hence the relation between the local affection and the constitutional affection is very manifest.

The diseases included in the present group are:

Erythema
Erysipelas

Urticaria
Roseola

ERYTHEMA.

ERYTHEMA, or inflammatory blush, is a superficial inflammation of the skin, more or less partial in its distribution, occurring in spots and patches of various size, sometimes diffused and sometimes circumscribed, and attended with more or less swelling and pruritus. The redness is sometimes scarlet, sometimes crimson and purplish; and on dispersing is followed by a bluish and yellowish stain, like that of a bruise. The resolution of the inflammation is succeeded by exfoliation of the cuticle.

Erythema is commonly symptomatic of some disturbance of the digestive, the nutritive, or the uterine functions, or its symptoms are secondary and limited to a slight degree of irritative fever. Its duration varies from a few days to several weeks, and it is not contagious.

The varieties of erythema are as follows:—

Erythema fugax
" leve
" circinatum

Erythema marginatum
" tuberculatum
" nodosum

ERYTHEMA FUGAX is chiefly remarkable for its evanescence; it occurs in the form of patches, which are red, hot, itchy, and slightly swollen; sometimes successive and sometimes changing their place as though by metastasis.

Bateman compares the redness of the patches to that produced by pressure, and remarks upon its association with various febrile affections. He also mentions the opinion of Hippocrates that it denoted a tedious and dangerous disease. Our own experience

associates it with disorders of the mucous membrane of the digestive, secreting, and uterine organs, and especially the latter.

Erythema fugax is sometimes more remarkable for a tendency to swell (*erythema tumescens*) than for its redness, and this form of the disorder is often very annoying. A little itching is felt in the part attacked; it swells quickly, and in the course of an hour has attained a considerable size. The swelling lasts for a few hours, and subsides almost as rapidly as it arose. We know a military officer who was the subject of this curious malady. The swelling would take place so suddenly that he was sometimes seized with it while on duty; occasionally it affected the integument of the eyelids; his eyes were quickly closed, and it was necessary to lead him to his quarters completely blinded. But a more painful case was that of a clergyman, in whom the disorder attacked the lips and sometimes the tongue: when it occurred in the latter situation, he was once or twice nearly suffocated.

Erythema fugax is also associated with another curious affection, namely, vicarious menstruation (*erythema menstruale*). A sudden flush with a little swelling appears upon some part of the skin, generally the face; a sanguineous exudation takes place, which lasts for a few days and then subsides. The exudation is not continuous throughout the whole period, but intermittent, and during the intermission the skin has the appearance of having been scorched. We have seen three well-marked examples of this affection: the patients were young, and suffering from amenorrhœa; they were also hysterical.

ERYTHEMA LÆVE, VEL ŒDEMATOSUM, is a local form of erythema, depending upon the inward pressure of œdema of the subcutaneous cellular tissue. It occurs for the most part in the lower extremities, or in any depending part of the body. Sometimes it is met with in the eyelids, and is mistaken for erysipelas, and not unfrequently in the lower limbs. The cuticle breaks up into a series of retiform lines; the exposed cutis exudes a serous secretion; there is considerable pruritus, and the case becomes transformed into one of eczema. Erythema læve is a frequent accompaniment of anasarca, in which case the surface of the skin is red and shining.

Another form of erythema, originating in a local cause, namely, friction; such as the friction of ill-fitting clothes, the friction of

riding on horseback, the friction of one part of the body against another, or of two folds of the skin, as in fat and flabby persons, and in infants whose skin is naturally sensitive, is *erythema intertrigo*,* and the evil is increased if the integument be in a moistened state, as by the condensation of perspiration or the flow of secretions over the part. In lymphatic constitutions the erythema is apt to be accompanied with exudation, in the first place of a serous fluid, and subsequently of a muco-purulent secretion. The presence of exudation, however, transfers the affection from the erythematous to the eczematous group, and the case becomes one of *eczema mucosum*. The erythema which is apt to occur in bedridden persons, and which precedes bed-sores, is termed by Sauvages *erythema paratrimma*, and by Plenck, *erythema a decubitu*.

The term erythema is also applied to one stage of burn, and also to the first stage of frost-bite; the first being called *erythema ab igne*, or *ambustio erythematosa*; the latter, *erythema a gelu*, or *pernio erythematosa*.

ERYTHEMA CIRCINATUM begins in the form of circular and slightly raised patches, which increase by the circumference and fade in the centre, forming rings of various size, with borders of various breadth, being sometimes narrow and sometimes broad. The skin over which the inflammation has passed throws off its cuticle in furfuraceous desquamation, and the rings, meeting and crossing in their course, give rise to a variety of irregular figures, consisting of broken segments of circles. This form of eruption is often met with in the course of ailments accompanied with perspiration, and when the patients have been kept hotly covered up with bedclothes, as in rheumatic fever. It is also seen in the spring season of the year, on the lower extremities of young persons, and also associated with rheumatism.

ERYTHEMA MARGINATUM is a chronic form of erythema circinatum; the border is more raised, particularly at the periphery; the congestion is deeper tinted, often crimson or purple, and the rings broken and irregular. They are chiefly met with in elderly persons, on the extremities and loins, and, according to Willan and Bateman, are associated with some internal disorder, their occurrence being deemed an unfavourable sign.

* Intertrigo, a chafe-gall, or gall from chafing; a fret.

ERYTHEMA PAPULATUM ET TUBERCULATUM.—The two forms papulatum and tuberculatum only differ in size of the eruption, the symptoms being the same; and not unfrequently they are intermingled in the same person, or on the upper extremities assume the smaller or papulous form, and on the lower extremities the larger or tuberos form. Both commence with itching and tingling, which is increased by the stimulus of meals and heat of bed; both are slightly raised at their first appearance, and subside to the level of the skin in a few days; and both are brightly red at first, become purplish by degrees, and fade away into a greenish and yellow stain. The smaller kind are met with on the face and neck, the chest, the upper extremities, and particularly in the neighbourhood of the joints and upon the back of the hands; and the larger kind are chiefly found upon the lower extremities and around the knees and ankles. Both are associated with disorder of the digestive organs, and the former with disordered menstrual function. The tuberos kind is commonly met with in female servants who have been recently introduced into London kitchens from the country: the eruption is tender to the touch, and frequently accompanied with febrile symptoms and rheumatic pains.

ERYTHEMA NODOSUM.—Erythema nodosum only differs from the preceding in a larger development of the inflamed area, and a somewhat more violent attack of disorder of the digestive organs and feverishness, by which it is preceded. The eruptions are oval in form; are hot, painful, and tender to the touch, and appear chiefly on the lower limbs, corresponding by their diameter with the vertical axis of the limb. Occasionally, however, they are disposed transversely, and we have seen patches so placed as to form a kind of bracelet just above the ankle. They are hard to the touch at first, and sometimes sink deeply into the tissues of the limb, involving the muscles; in a few days they become softer, and in a few days subside and disappear. At the commencement they are brightly red; as they attain maturity they become more so, and at their decline have the green and yellow tinge. In prominence they rise gradually to the centre, and are only associated with considerable derangement of the digestive organs, and frequently with rheumatism.

DIAGNOSIS.—Redness, bright at first and subsiding

tar soap, and afterwards dressed with the benzoated ointment of oxide of zinc, combined with spirits of camphor. In erythema paratrimma especially, the inflamed part should be pencilled with a liniment of white of egg and spirits of wine, and afterwards dressed with the unguentum resinæ flavæ.

For chilblains, in their erythematous state, the treatment is friction, with moderately stimulant liniments; such as the linimentum camphoræ, with chloroform; soap liniment and oil of cajeput; or a liniment composed of the contents of one egg, one ounce of spirits of turpentine, and one ounce of distilled vinegar, well shaken together.

ERYSIPELAS.

ERYSIPELAS, derived from *ερυθρος*, *rubor*, and *πιλλα*, *cutis*, is a diffused inflammation of the skin and subcutaneous cellular tissue of a part of the body, preceded and accompanied by derangement of the digestive organs, and more or less severe fever.

The inflammation of the skin is indicated by redness, swelling, burning heat and tingling, and a sense of tension and pressure, and is remarkable for a disposition to spread; sometimes creeping onwards upon the neighbouring skin, and subsiding on the part first attacked; and sometimes vanishing suddenly on one spot to appear upon another at some distance. It is this ambulant or wandering character, and the tendency to sudden disappearance, that has gained for two of its forms the names of *erraticum* and *metastaticum*.

The swelling is sometimes very moderate; at other times there is a degree of infiltration into the subcutaneous cellular tissue amounting to œdema, and with the œdema an interstitial infiltration into the corium, producing thickening and coarseness of the skin. An advanced degree of this serous infiltration gives rise to the development on the inflamed surface of vesicles constituting *erysipelas miliare*; while larger vesicles or bullæ distinguish the forms known as *erysipelas phlyctenodes*, or *bullosum*, that which is marked by simple œdema being *erysipelas œdematosum*.

Erysipelas has a tendency to invade by preference certain regions of the body; for example, the head and face; next in

frequency it is met with on the limbs; and in newly-born infants it is apt to attack the umbilicus and abdomen. It also manifests a remarkable difference in respect of depth, the forms heretofore referred to being superficial, while one form is distinguished for its invasion of the deep structures of the body as well as the skin, namely, *erysipelas phlegmonodes*. Another diversity in the forms of erysipelas has reference to its cause, the ordinary cause being constitutional, while a very dangerous form, *traumatic erysipelas*, has its origin in wounds, as in the erysipelas which comes on after surgical operations.

Erysipelas generally runs a course of ten days, to a fortnight or three weeks; the local inflammation commonly makes its appearance on the second or third day of the constitutional disturbance, goes on increasing for four or five days longer, and begins to decline on the eighth or ninth day. In erysipelas phlyctenodes the bullæ are formed on the fourth or fifth day, each bulla having an existence of twenty-four hours before it bursts, and erysipelas capitis reaches its height about the fourth or fifth day, and its decline at about the seventh or eighth.

The termination of erysipelas usually takes place by resolution: the swelling subsides, the redness disappears, the tenderness and pain cease, and the cuticle is separated by desquamation. The thin scabs formed by the desiccation of the cuticle covering the broken vesicles also desquamate in a few days.

The constitutional symptoms of erysipelas are those of invasion, course, and decline. The symptoms of invasion are: chills or rigors, with flushes of heat; lassitude; pains in the back and limbs; headache and drowsiness; thirst; loss of appetite; white, coated tongue; bitterness of mouth; nausea; often vomiting; weight and oppression at the epigastrium; constipation; quick, and sometimes hard pulse, and dry skin. These symptoms are mitigated upon the appearance of the inflammation of the skin, and take on more or less of a nervous character; the pulse becomes soft and quick; the tongue is brown and dry, and there is more or less delirium. On the occurrence of the decline of the local inflammation the bad symptoms either subside by degrees, and a diarrhoea or lithic acid sediment shows a return of normal energy of the organic functions; or the patient falls into a state of coma from effusion between the membranes

of the brain, or, asthenia, from exhaustion; and gradually succumbs.

Not unfrequently, at the close of the fever, there is some degree of hæmorrhage from the mucous membrane, sometimes from the pulmonary or alimentary mucous membrane, and sometimes from the womb.

The *varieties* of erysipelas may be arranged in two groups, general and local, as follows:—

GENERAL VARIETIES.

Erysipelas erraticum	Erysipelas phlyctenodes
" metastaticum	" œdematodes
" miliare	" phlegmonodes

LOCAL VARIETIES.

Erysipelas faciei	Erysipelas mammæ
" capitis	" umbilicale

ERYSIPELAS ERRATICUM is the erratic form of the disease. It is rarely accompanied with much swelling, or with the development of vesicles. It occurs most frequently upon the head and face.

ERYSIPELAS METASTATICUM.—Metastasis is one of the dreaded phenomena of erysipelas, and the especial danger that is feared is metastasis or transfer of the inflammation from the skin to the brain. This danger is, of course, very much increased when the seat of the disease is the head or face. The true explanation of metastasis is that which has already been discussed in connection with the probabilities of repercussion of eczema; a *causa morbi* exists in the economy, and some organ will be the sufferer; so long as the vital power is able to exert a conservative control, the disease will run its normal course in the organ already attacked, whatever it may be; but if the vital power be very much weakened, then no human caution or contrivance can prevent the transference of the *causa morbi* from one organ to another, without any rational explanation being possible. The metastasis of erysipelas, says Dr. Watson, is rare; "I do not recollect to have seen it. But the extension of the inflammation, the supervention of delirium and coma, while the external inflammation continues, is of common occurrence."

ERYSIPELAS MILIARE ET PHLYCTENODES represent two

degrees of effusion beneath the cuticle of the serous fluid already infiltrated into the tissues of the skin. In the slighter of the two, the serum is exuded in small quantity, and gives rise to vesicles, of the size of millet-seeds; in the other, the quantity of serum is greater, and the vesicles assume the character of phlyctenæ, or bullæ. The bullæ are commonly developed on the fourth or fifth day of the fever, and go on enlarging for twenty-four hours, when they usually burst. Their contents are sometimes pale and watery, and sometimes opalescent; more frequently they are amber-coloured, and sometimes, when there is a tendency to dyscrasis of the tissues, they are purple, from intermixture of the colouring principle of the blood with the serum. When the bullæ burst, their bases become covered with thin scabs, which, at first yellow, soon become brownish, and almost black.

ERYSIPELAS ŒDEMATODES is a modification, due to the accumulation of serous fluid in the subcutaneous cellular tissue; it occurs most frequently in the lower extremities, and sometimes in the organs of generation. When the inflammation subsides, the fluid is gradually absorbed.

ERYSIPELAS PHLEGMONODES is more deeply seated, and more severe in all its phenomena, than simple erysipelas. The subcutaneous cellular tissue, the superficial and deep fascia, and the intermuscular fasciæ, are all involved in the inflammation, which instead of being circumscribed like ordinary phlegmon, puts on the true erysipelatous character of spreading on all sides, and involving a considerable extent of tissue in destruction, and sometimes the greater part of a limb. It occurs most frequently in the extremities, but may attack any part of the skin; and runs on to suppuration, and commonly to gangrene of the cellular tissue and fasciæ.

The *local* signs of phlegmonous erysipelas are, redness, swelling, hardness, extreme tenderness, and an acute burning pain; when, at about the fifth or sixth day, suppuration is established, the pain is throbbing, an obscure fluctuation is felt, and pressure with the hand communicates a boggy sensation. When sphacelus is set up, the colour of the skin changes to purple, or assumes a livid tint. When the case is disposed to terminate in resolution, an amelioration of the symptoms takes place at the fifth or sixth day.

The *constitutional* symptoms of erysipelas phlegmonodes are the same as those of erysipelas simplex, but more severe; delirium is not uncommon, the tongue is dry and brown, and there are sometimes diarrhoea and profuse perspirations.

ERYSIPELAS FACIEI is a serious form of the affection, as it involves parts of high organization, and closely associated with the nervous system and brain. The inflammation begins at the side of the nose, and spreads rapidly over the whole face, swelling the features to such an extent as to be barely recognizable. The eyelids, the ears, and the lips, are greatly tumefied, and the inflammation is apt to extend to the conjunctiva, and to the mucous membrane of the nose, mouth, and throat, often involving the parotid and submaxillary glands, and occasioning suppuration among the deep tissues of the neck. The constitutional symptoms are very severe: there is violent headache, sleeplessness, restlessness, delirium, and finally, coma. Sometimes death results from exhaustion or asthenia, and sometimes from apnoea, in consequence of obstruction of the glottis by infiltration of the mucous membrane.

ERYSIPELAS OF THE SCALP is usually the consequence of a wound (traumatic erysipelas), and occurs in about a week or ten days from the reception of the violence: the integument is cedematous, smooth, shining, and very sensitive, and the inflammation is apt to run on to suppuration and gangrene of the cellular and fibrous tissues, and not unfrequently the inflammation is transferred to the brain.

ERYSIPELAS OF THE MAMMA is apt to assume the phlegmonoid character, in consequence of the presence of a large quantity of loose cellular tissue: suppuration takes place, with gangrene of the fibrous tissues.

ERYSIPELAS OF THE UMBILICAL REGION occurs in young infants, from mismanagement of the umbilical cord, particularly in public institutions, and under the influence of an epidemic malaria. The inflammation spreads more or less extensively over the whole of the abdomen, and frequently extends to the organs of generation.

DIAGNOSIS.—The distinguishing characters of erysipelas is a deeper affection of the tissues than occurs in erythema, a great amount of tumefaction, a proneness to spread, and especially more severe constitutional symptoms. Erysipelas phlegmono-

is known by the hardness, which indicates a deep implication of tissues, a greater amount of pain, and the suppuration of the subcutaneous tissues.

CAUSE.—The previous consideration of erythema has taught us that a derangement of the digestive functions may be sufficient to excite an inflammation in the skin; so in the present instance, we must have recourse to a similar explanation in some instances of erysipelas; for example, in idiopathic and traumatic erysipelas. In other cases, erysipelas seems to be referable to malaria, and sometimes to infection and contagion, and it is apt to prevail epidemically. Puerperal fever would seem to be one of the sources of the infection of this disease, and erysipelas and puerperal fever are reciprocally transmissible. The predisposing cause is debility, and the remote predisposing causes, those conditions that tend to lower the tone of the system and the energy of the vital powers; for example, anxiety, affliction, and exhausting excesses of every kind. Some persons seem to possess an erysipelatous diathesis, and in such persons the most trivial wound, such as a scratch with a pin or the bite of a leech, is sufficient to induce an attack.

PROGNOSIS.—Erysipelas being always serious, and often dangerous, demands the utmost care, and is generally of doubtful prognosis; and this is especially the case with some of its forms; for example, erysipelas faciei et capitis, and erysipelas phlegmonodes.

TREATMENT.—The treatment of erysipelas presents the usual two indications, constitutional and local; the first being directed towards the subjugation of the fever, the second to the relief of the local affection.

Erysipelas being essentially a disease of debility, of asthenia, and its progress being marked by that form of morbid inflammation which is termed irritability, we have to bear in mind the necessity of sustaining the vital powers, and of putting in practice a conservative plan of treatment. All that is signified in the expression "regulate the digestive organs and secretions," must be accomplished in the first instance and quickly, that no fermenting irritant may be allowed to exist in the alimentary canal, and no torpidity of operation of the liver or kidneys complicate the future progress of the case; moreover, we gain another point by this preliminary clearance of the alimentary system; we

excite a derivative action, which is an important element in the treatment, while we perform artificially that which nature would otherwise neglect. Nevertheless we must not fail to keep in mind the asthenic nature of erysipelatous inflammation, and the necessity of a strictly conservative policy in its management.

The remedies the best suited to the regulation of the digestive organs and secretion, are a full dose of calomel with the compound extract of colocynth, say two to four grains of the former, with six to eight of the latter, and two of extract of hyoseyamus, followed after a lapse of twelve hours with a senna or rhubarb draught. If there be any objection to calomel, half a grain of podophyllin may be substituted in its place. When the bowels have acted freely, the tendency to constipation which is apt to succeed the use of purgative medicines must be controlled by the daily exhibition of a mild aperient. The derivative action once established must be sustained; the digestive mucous membrane, once prompted to a natural action by remedies, must not be permitted to relapse into a sluggish state; but we must be equally cautious in avoiding any unnecessary irritation of the alimentary canal.

If the fever run high, we may find it necessary to have recourse to effervescent salines, or to use the neutral salt sulphate of magnesia as our laxative; or administer the chlorate of potash, dissolved in water or barley-water, as the daily drink. One drachm of this salt may be taken in the twenty-four hours.

But the moment the alimentary canal is pronounced to be free, we must be ready with our tonics: they should be combined with aperients, as in the combination of the sulphate of quinine with sulphate of magnesia, and they should be administered independently. We may select bitters with the mineral acids; cinchona with sulphuric acid; or the citrate of iron and quinine. But there is one tonic which, above all others, is suitable for erysipelas, in fact is declared to be specific, and, as far as our experience is concerned, is literally so; namely, the tincture of the hydrochlorate of iron.

The tincture of the sesquichloride of iron may be commenced the moment the bowels have been sufficiently relieved, and may be continued through all the stages and variations of the complaint. It is given in simple dilution with water, in doses of 20 minims, every two hours until the fever is subdued. Dr. Bal-

four, who recommends this plan of treatment strongly, advises that it should be administered with regularity, so as to saturate the system as speedily as possible, and he urges that it is only at the point of saturation that the remedy exerts its great curative power. He finds it remove pain, lessen the heart's action, clean the tongue, and act as a diuretic; it is admissible, he says, in every stage of the fever, even in high delirium; it never produces headache; it arrests suppuration in phlegmonous erysipelas, and brings about a cure in less than a week. For infants he prescribes doses of two minims, and for intermediate ages a relative increase.

Ammonia is a favourite remedy in erysipelas with some practitioners, in all its forms; the citrate and acetate as an antiphlogistic remedy, and the sesquicarbonate as a specific. The latter may be administered in doses of five grains every two or three hours.

Sedatives are also valuable when great irritability prevails, and when they really act as sedatives, and not, as too frequently happens, as excitants of the brain and stimulants. Aconite and belladonna have gained a reputation in erysipelas, and so also have hyoscyamus, morphia, and the liquor opii sedativus. If belladonna answer the purpose, we should give it a preference, on account of its known aperient effect on the bowels when administered in very small doses, say an eighth of a grain of the extract every six or twelve hours. But on matters of detail, such as doses, the practitioner must depend on his own judgment; all we can hope to do is to lay down general principles and point out what remedies have the credit of being the best.

Another department of the constitutional treatment is diet: a milk diet with farinaceous puddings; then eggs; then broths; next fish; and afterwards poultry. For drinks, toast-water and barley-water. To this, which is the ordinary antiphlogistic diet, may require to be added wine, with a view to support the vital powers of the sick person. The quantity may be six to twelve ounces of sherry or port wine in the day, according to its effect and according to the previous habits of the patient; and at proper intervals.

The *local* treatment of erysipelas is of two kinds, palliative and curative; the former being intended to relieve symptoms, namely, the heat, the tension, and the pain; the latter to set up a new action, and supersede and alter the quality of the inflam-

mation. The remedies suited to the first of these purposes are : sedative fomentations, dredging with flour, and inunction with lard ; the second purpose is attained by pencilling the surface with a solution of nitrate of silver. As a general rule, cold and chilling applications are very objectionable ; sloppy remedies are equally so ; and both these inconveniences are obviated by inunction with lard, which we regard as by far the best palliative treatment of this disease. The manner of employing this admirable remedy, which we consider to be as thoroughly specific for outward use as is the tincture of the sesquichloride of iron for internal administration, we shall explain in the words of the surgeon* who first called our attention to it : " My plan is to relax the skin with hot water or steam fomentations, and after each fomentation to saturate the inflamed surface with hot lard." He then covers the part with a sheet of wool, and keeps the wool in its place by means of a bandage not too tightly applied.

When fomentations are used, they should be laid on by means of a fold of flannel saturated with the hot solution, and covered with oiled silk or gutta percha ; or the fots, if substantial, as in the case of chamomile-flowers or hops, may be applied in a muslin bag. But these remedies are in every way inferior to the dressing with lard and cotton wool.

The curative local treatment consists in blistering the inflamed surface by means of the application of a strong solution† of nitrate of silver. Mr. Higginbottom, of Nottingham, who is the author of this plan, directs that the solution should be applied freely by the aid of a dossil of lint attached to a piece of stick, and not only to the inflamed part, but to the sound skin bordering it, to the extent of an inch or more, if the case be severe. The solution should be used more freely in bad than in slighter cases. The inflammation rarely travels beyond the limits of the caustic, and even when it does is easily controlled. Mr. Higginbottom considers the line of nitrate of silver drawn around the circumference of the inflammation as of very little use, and notes that on the scalp the solution rarely produces vesication. The caustic solution is equally applicable to phlegmonoid and simple erysipelas. After the use of the caustic solution, we are in the habit

* John Grantham, of Crayford, Kent.

† Mr Higginbottom's formula is as follows : Argenti nitratis ℥viij ; Acidi nitrici diluti ℥xij ; Aquæ distillatæ ℥j.

of smearing the surface with lard and covering it with cotton wool, as in ordinary lard inunction.

In the vesicular form of erysipelas the bullæ should be punctured with a needle and gently pressed with a sponge squeezed out of warm water, in order to absorb the serum and flatten the raised cuticle upon the surface of the corium. When this has been accomplished, the inunction and cotton wool may be reapplied.

In erysipelas of the scalp, it is often necessary for the purpose of relieving the tension and pain, to make an incision through the inflamed tissues down to the bone, and in erysipelas phlegmonodes, one or two incisions are required to liberate the pus and sloughs, and especially to ease the pain which is created by the diffusion of pus beneath the fasciæ. The incision has the double effect of giving exit to pus and sloughs, and also of emptying the vessels of the congested skin. After incision, the parts must be covered with a poultice and placed in a position favourable for the escape of the discharges.

URTICARIA.

URTICARIA, or nettle-rash, derived from *urtica*, a nettle, is an ephemeral congestion of the skin, accompanied with a burning and tingling itching, with more or less redness, and with the development on the red ground of small elevations or wheals, which are sometimes round and oval, and sometimes in long narrow stripes. The rash is sometimes preceded by symptoms indicative of considerable derangement of stomach, and sometimes, in a chronic form, is wholly unaccompanied by constitutional symptoms. It is not contagious.

The resemblance of urticaria to the effects of stinging the skin with a nettle is twofold: firstly, the hot, burning, and tingling itching is similar to that of the sting of a nettle; and, secondly, the white elevations or wheals are due to the same cause, namely, spasm of the muscular structure of the corium. In lichen urticatus we have had the opportunity already of noticing the influence of muscular spasm of the skin in the production of papulæ; it is seen also in the spasmus periphericus, which occasions that common physiological condition of the skin, cutis anserina; and the white wheals raised upon the inte-

gument by the lash of the whip in flogging are the result of a similar operation. In some persons the skin is so sensitive and the muscular tissue so irritable, that wheals may be produced at any moment by touching it with a feather, or lightly with the finger. We may thus sometimes trace figures and letters upon the skin, or write our name, and the figures and the writing will instantly stand up in relief in the form of white wheals. We have sometimes noticed in the white wheals of urticaria an alternate contraction and relaxation of the muscular structure, which gave them the appearance of pulsation, or of an ebb and flow of blood in the capillary vessels.

Urticaria is sometimes transitory and sometimes very enduring, lasting even for years. We have thus a kind of division of the disorder into *acute* and *chronic*. The acute forms are preceded and accompanied with symptoms indicative of great derangement of stomach and its sympathetic influence on the nervous and vascular system, producing a temporary fever; while the chronic forms exhibit no traceable disorder of the economy.

In the acute forms of urticaria there is generally a little swelling, reminding us of the swelling of erythema, and in a less degree of that of erysipelas; and at the close of the rash there is sometimes a little œdema. But the most striking character of the rash differs essentially from anything observable in either one or other of those affections, namely, the nervous irritation that occasions the muscular spasm. In the acute forms also the skin is somewhat altered in colour at the decline of the congestion: it is purplish and yellowish, like a bruise; and if the congestion have run high, as in urticaria ab ingestis, there will probably be some degree of furfuraceous desquamation of the affected part.

Its *varieties* are founded on its occasional febrile character; on the confluence of its wheals; on its evanescence or permanence; and on the extension of its local symptoms deeply into the skin and subcutaneous tissues, and involving a greater breadth of muscular tissue in spasmodic action. They are as follows:—

ACUTE.

Urticaria febrilis
 " ab ingestis
 " conferta

CHRONIC.

Urticaria evanida
 " perstans
 " subcutanea
 " tuberosa

URTICARIA FEBRILIS is distinguished by the occurrence of symptoms denoting great irritation of the stomach; for example, weight and fulness at the epigastrium, nausea, faintness, thirst, white tongue, quick pulse, pain in the head, and general lassitude and prostration. After an interval of one or two days, there is an outburst upon the skin of a number of irregular blotches, vividly red, covered with wheals, and intensely itchy. This outbreak commonly relieves the gastric symptoms; but as the cutaneous irritation subsides, the internal symptoms return. The heat and tingling and itching of the skin are always worst at night, and the internal and external symptoms are apt to alternate for a week or ten days before they decline and disappear. Willan narrates a fatal case of urticaria febrilis; the patient had been intemperate, and was much out of health.

* URTICARIA AB INGESTIS is the name given to an attack of febrile urticaria dependent on the presence in the stomach of some irritant or deleterious article of food. The symptoms are apt to come on a few hours after having partaken of the noxious aliment, sometimes in the night, encouraged by the suspension of digestion during sleep, and are very severe, and occasionally fatal. They commence with a feeling of fulness and weight at the epigastrium, with nausea, faintness, giddiness, and sometimes vomiting and diarrhoea. There is a prickling in the throat, with a sense of constriction of the fauces, cough, a feeling of impeded respiration, and swelling of the tongue. From the mucous membrane the irritation spreads to the skin; the nose, the lips, and ears are swollen, hot, and itchy; the features are enlarged; the rash extends to the trunk and limbs, and is particularly troublesome in the neighbourhood of the joints. The rash sometimes continues to be annoying for a day or two, but more commonly subsides after a few hours, and is followed by a furfuraceous desquamation of the cuticle.

These severe symptoms are not necessarily the consequence of a highly irritating or poisonous principle present in the food; but are sometimes induced by the most harmless articles of diet; for example, rice, eggs, pork, goose, fruit, etc. A more frequent cause of urticaria is shell-fish, and particularly mussels.

Willan has put on record a case evincing a disposition to periodicity on the part of the urticaria, and we have met with

a somewhat similar instance. In Willan's case the rash recurred weekly for a considerable time; in our own it re-appeared once at the end of a week.

URTICARIA CONFERTA.—Instead of being scattered as they commonly are, the wheals of urticaria are sometimes collected into thick clusters, and give rise to the present variety. This difference of character is chiefly due to the constitution and susceptibility of the patient, and not to any difference of cause. Its symptoms bring it into the group of the acute forms, bearing some resemblance to those of *urticaria febrilis*.

URTICARIA EVANIDA ET PERSTANS represent the chronic form of the disorder, in which there are no febrile action and no symptoms of gastric derangement, and wherein the disease continues for an indefinite period of time. In the evanescent form, *urticaria evanida*, the rash is accompanied with tingling and itching, is apt to come out several times in the day, and is very troublesome at night. It appears also under the influence of exercise, after taking meals, and on mental emotion. After a continuance of a few hours, the rash disappears, and no trace can be discovered of its attack. In the persistent form, *urticaria perstans*, the general symptoms are the same, but the rash, with its crop of irritable wheals, continues for several days or weeks, and sometimes for months. The separate wheals do not remain the whole of the time, but are reproduced in succession; and the entire eruption acquires thereby the character of permanence.

URTICARIA SUBCUTANEA. — Under this name Willan has described an affection in which the tingling, burning, and itching are present without the wheals; or the latter are occasional and developed in a minor degree. It is not uncommon in diseases attended with a variety of symptoms to meet with examples in which one or other of these symptoms may be in excess, while another is wanting. Under these circumstances, if the existing symptom be characteristic, we adopt it as the type of the doubtful affection. In the present variety, the sensation of tingling and stinging, and of puncturing with fine needles issuing from within, are characters of urticaria, while the rest of the symptoms point to some more deeply-seated morbid change in the nervous system. The affection is fortunately rare. Willan remarks that it is partial, and that he had seen it only on the loins and thighs, and sometimes on the arms; but he con-

ceives that it might spread over the greater part of the body.

URTICARIA TUBEROSA is the result of a blending of the symptoms of erythema tuberosum and urticaria; the deep-seated morbid alteration of the former is combined with the muscular spasm and pricking and tingling itching of the latter. The tuberos prominences are of large size, varying in diameter between half an inch and two inches; few in number, flat on the surface, hard to the touch, the hardness being felt to sink deeply into the substance of the limb, and extremely tender. They rise in a few hours, commonly in the course of the night, and when they subside they leave behind them a green and yellow stain like that of a bruise. The disorder is rare, and is only met with in persons beyond the middle age, whose constitution is much debilitated by intemperance and chronic disease. The most marked example that we have seen was in a very fat man of gouty diathesis, who was at the same time suffering from cedematous eczema of the lower limbs. On his thighs were several of these tubera, and between them the greenish-yellow stains of those that had dispersed. Their outbreak during the night was accompanied with severe stinging and itching.

DIAGNOSIS.—The distinguishing signs of urticaria are, the tingling, burning, pricking, and stinging; the development of wheals; and the evanescent character of the eruption. The papules of lichen urticatus are permanent, although their acute or spasmodic stage is transient; and the tuberos elevations of erythema papulatum, tuberosum, and nodosum, are ever white like the wheals of urticaria, while the eruption is more permanent.

CAUSE.—Gastric irritation is clearly established as an exciting cause of urticaria in the acute forms, and is not improbably a cause of its chronic forms. To gastric irritation as a cause of chronic urticaria may also be added irritation of any of the mucous membranes of the body, and particularly that of the uterine system. As a predisposing cause, we have detected the presence of debility, generally of the assimilative and sometimes of the nervous kind. Not unfrequently urticaria is associated with rheumatism, and we have also seen it intermittent with neuralgia. Dr. Maclagan having detected in the urine of a person suffering under urticaria a deficiency of urea and uric acid, has

suggested that the disease may arise from a want of proper transformation of the waste tissues of the body, and the detention in the blood of the elements of the organic salts of the urine; and he notes the relation subsisting between urticaria, rheumatism, and purpura. Dentition also acts as a cause of urticaria in children.

PROGNOSIS.—Urticaria is not a serious disease, and the premonitory symptoms of the febrile forms, although violent, and for the moment dangerous, are not difficult of relief. Chronic urticaria is very troublesome and obstinate, and is indicative of an existing debility, associated with chronic functional disturbance. Urticaria subcutanea from its connection with nervous irritability, and urticaria tuberosa from its alliance with a broken-down state of the constitution, are necessarily of doubtful augury.

TREATMENT.—Febrile urticaria requires the exhibition of an efficient purgative at first, and the subsequent administration of effervescent salines, combined with ammonia and hydrocyanic acid. When the feverishness has subsided and the secretions are natural, we may then have recourse to bitters, with the mineral acids and chalybeates, either alone or with quinine.

In urticaria ab ingestis, it may be necessary to relieve the stomach of its load by means of an emetic; and we may select sulphate of zinc or ipecacuan wine as the most suitable. Bearing in mind the faintness and extreme prostration which sometimes accompany the nausea and sickness of this complaint, Willan cautions us against the use of tartarized antimony as likely to increase that kind of suffering; and Plumbe, with the same idea, suggests the administration of sulphuric ether in doses of twenty to forty minims every half-hour until reaction is restored; at the present day he would probably have given the preference to chloric ether.

Chronic urticaria is to be treated by the restoration of the general health. In every instance some one or more functions are deranged, possibly unknown to the patient, and these nothing but an improvement in vital power and general vigour will set right. We have found of great service the mineral acids with a bitter; cinchona with sulphuric acid; quinine with sulphuric acid, and quinine with iron; while very chronic cases will yield to nothing but arsenic.

Where any special indication presents itself, such as the gouty or rheumatic diathesis, we may call in the aid of colchicum, or in a neuralgic complication that of quinine.

The *local* treatment of urticaria consists in the employment of remedies which are calculated to relieve the itching, tingling, and smarting. For this purpose, we find sponging with hot water serviceable; ablution with the juniper-tar soap; sponging with the lotion of juniper tar; frictions with the juniper-tar ointment; the use of a lotion of emulsion of bitter almonds with hydrocyanic acid; a lotion of bitter almonds, with spirits of wine and bichloride of mercury; sponging with hot vinegar; with a lotion of the sesquicarbonate of ammonia; and liniments of opodeldoc and chloroform or laudanum. When one application fails, another must be tried, until the intended effect is produced. Where convenient of access, the tepid bath affords almost instantaneous relief.

ROSEOLA.

ROSEOLA, or rose-rash, so named from its dull crimson or roseate hue, is distinguished not only by the colour of the efflorescence, but also by its manner of distribution, and by its association with congestion of the mucous membrane of the fauces, and a moderate amount of general fever.

The colour of roseola varies in degree of brightness; occasionally, as in some of the local forms, it is quite vivid; in the general forms it is less bright, and is influenced by the clearness or muddiness of the skin; and in the form termed by Willan *roseola autumnalis*, the congested patches "are of a dark damask-rose hue." Associated with this purplish tint of colour of the rash is the tendency exhibited by some of its forms to merge into purpura, and to leave behind them a green and yellow stain, like that of a bruise, at their decline.

The vascular congestion of roseola affects both the follicular and the capillary plexus of the skin; in the former case giving rise to a punctiform efflorescence; in the latter to a blotch, resembling erythema in its pathological character. The *general* forms of the exanthem are for the most part punctiform, and are distributed in small clusters or corymbi (*roseola corymbosa*), like

those of rubeola. This corymbose distribution of the rash is a point of some importance in distinguishing roseola from rubeola; the mechanical elements of the rash are identical in the two affections, and the resemblance is often so exact as to render distinction, by the aid of the exanthem alone, a thing impossible.

After the punctiform and corymbose distribution of the rash, the most frequent form is that of a ring (*roseola annulata*), which sometimes springs from the circumference of a corymbus, and circles it around; and sometimes begins as a circular patch, and fades in the centre while it spreads by the circumference. In the former case the rings are narrow and fine, and may constitute a general exanthem; in the latter the rings are broad and local, being limited to some one region of the body, such as the lower extremities.

Under the name of *roseola punctata* we have described a third form, in which, not the corymbi but the separate puncta afford the most conspicuous character; the congested puncta in this case being sprinkled more or less thickly over the surface of the skin, and also constituting a general form of the exanthem. Following the corymbose, the annulate, and the punctated varieties, comes a fourth form, pointed out by Willan; namely, a circular blotch, retaining permanently that figure; and remarkable for its deep roseate and almost purplish hue. To distinguish this form from the preceding, we shall venture to name it *roseola maculosa*.

Next in interest to the cutaneous exanthem is that which affects the mucous membrane of the fauces. This is a deep crimson blush; and coincident with the congestion of the fauces, there is commonly some degree of swelling and tenderness of the submaxillary glands, and often of the neighbouring lymphatic glands. The participation of the mucous membrane, or internal skin, in the irritations of the external skin, is a pathological phenomenon that our physiological studies teach us to expect; and the chief point of importance deserving of note in the present instance, is the fact of a similar, but more grave congestion, occurring in rubeola, scarlatina, and variola; and we may also bear in mind that we have noted the same circumstance already, but in a less degree, in erythema papulosum, in urticaria, and in erysipelas.

The febrile symptoms of roseola are similar to those which

accompany the exanthematous fevers generally, but much less in degree, and often so slight as to be hardly appreciable. They consist for the most part of nausea, headache, aching in the back and limbs, restlessness, languor and lassitude, chills succeeded by flushes, quick pulse, white tongue, thirst, sore throat, and arrested secretions of the skin, kidneys, and bowels. And often, in conjunction with the febrile symptoms, there occur rheumatismal pains.

Moreover, it must not be omitted, in the general history of roseola, that there is no swelling or prominence of the skin, as happens in erythema, erysipelas, and urticaria; and that the affection, although often prevailing epidemically and endemically, is not contagious.

The VARIETIES of roseola may be divided into two groups, idiopathic and symptomatic; the former being independent or primitive in origin, the latter symptomatic of other forms of disease. In a tabular arrangement they may be grouped as follows:—

IDIOPATHIC.	SYMPTOMATIC.
Roseola corymbosa	Roseola variolosa
„ annulata	„ vaccina
„ punctata	„ rheumatica
„ maculosa	„ arthritica
	„ cholericæ
	„ febris continuæ.

ROSEOLA CORYMBOSA is the roseola infantilis and æstiva of Willan, the false measles, or rubeola notha, of other writers; but as the exanthem, although most common in childhood, may occur also in the adult, and, although much under the influence of seasons, may happen at any period of the year, we have thought it desirable to affix to it a designation which is characteristic and unalterable, and which furnishes also grounds of comparison with its other forms.

Roseola corymbosa may be regarded as the typical form of the roseolous eruption, as the special form, which, from its resemblance to measles, may be mistaken for that complaint and treated as secondary measles, mild measles, false measles, or rubeola notha. It is developed on the skin as a punctiform and corymbose or rubeoloid rash, of a brighter or duller roseate hue,

and distributed more or less extensively over the surface of the skin; sometimes appearing on the face and trunk only, and sometimes both on body and limbs.

The exanthem is commonly preceded by slight febrile symptoms of one or two days', and sometimes as much as a week's continuance. The rash makes its appearance in the evening or during the night, being perhaps first perceived on leaving bed in the morning, and lasts for three or four days, commonly subsiding on the fifth. It is crimson at first, soon becomes deeper-tinted, and assumes a dull roseate hue as it fades away. Its eruption is commonly attended with a moderate amount of itching and tingling; but this symptom is often absent, and in its development it follows more or less closely the path of the exanthemata, appearing first on the face, next upon the chest and trunk of the body, and lastly on the limbs; but not unfrequently it is found to invade the entire surface at once.

Absence of regularity is one of the features of roseola as compared with rubeola: it is variable in colour, in extent, in succession, in eruption, in duration; and it may also be mentioned that it is liable to recur when it has seemingly wholly disappeared.

In the rubeola notha of 1863-4, the exanthem was identical with that already described, but had a more decided character; the corymbi were partially papular; the congestion of the fauces was greater; there was more or less coryza; the febrile symptoms were more acute; and the affection formed part of a rubeolous epidemic. Nevertheless, it was often doubtful whether to consider it as a roseola or a mild rubeola. Sometimes it was curiously intermingled with varioloid, sometimes with diphtheria, and sometimes with rheumatism.

ROSEOLA ANNULATA sometimes makes its appearance as a corymbose exanthem, and the patches throw off small linear rings, or it begins from the beginning as an annular rash, and follows the course of roseola corymbosa, both in the development of its efflorescence and in general symptoms. In the latter case the rings are at first one or two lines in diameter, and increase to the dimensions of half an inch. Sometimes this form of roseola exists as a chronic affection. We had lately under treatment a delicate woman, aged twenty-one, who had been the subject of this exanthem intermittingly for several weeks. She

was pale and anæmic; her powers of digestion were weak, and she suffered under assimilative debility and great depression of spirits.

There is, however, another form of roseola annulata which commonly attacks the lower limbs: it begins in the form of circular blotches of about a quarter or half an inch in diameter, and spreads by the circumference, while the centre fades and forms an area surrounded by a broad ring. These rings attain a breadth of one or two inches, are of a bright crimson at first, and as they disappear, fade off into a greenish-yellow bruise-like tint. The constitutional symptoms are the same as those of common roseola, and the course of the local exanthem a week or ten days. We have seen this form only a few times, and then in children under puberty.

ROSEOLA PUNCTATA is a rare form of the exanthem, of which the following are the characters:—Febrile symptoms of a sub-acute type, accompanied with redness of the eyes, slight coryza, redness of the fauces, and swelling of the mucous membrane of the mouth, ushering in an exanthema at the end of three days; the exanthema appearing on the mucous membrane and skin; on the latter, in the form of small red spots occupying the mouths of the follicles, then becoming diffused so as to cover the greater part of the body, reaching its height on the third day; at first, of a bright raspberry-red colour, afterwards acquiring a dull roseate hue, the dulness increasing with the progress of decline; *the primary red spots resembling dull red stains* as decline advances, and fading by degrees after the disappearance of the rash; the entire attack lasting ten days, of which three belong to the febrile period, three to the exanthema, and four to its decline; the dark stains being perceptible for some days afterwards, the rash assuming a difference of form on different parts of the surface, such differences being all referrible to roseola.

ROSEOLA MACULOSA, the roseola autumnalis of Willan, occurs in the form of circular patches of about the size of a shilling, and of a "dark damask-rose hue," seeming at a distance "as if stained by the juice of black cherries or mulberries." The constitutional symptoms are very mild, and the eruption subsides in a week or ten days, leaving behind it a slight furfuraceous desquamation. This form of roseola is chiefly met with in chil-

dren, and principally upon the arms and legs. Occasionally it may take on the annular mode of extension mentioned above; in which case it would constitute a *roseola annulata*, with broad margin.

ROSEOLA VARIOLOSA is a blotchy redness of the skin, of roseolous hue, which sometimes accompanies the eruptive stage of variola. When inoculation for small-pox was practised, the rash was not unfrequent; at present it is rare. It follows the usual order of eruption of the erythemata, beginning on the face; then descending to the trunk, and afterwards to the extremities. It is regarded as a not unfavourable sign when the rash is of bright colour, but less favourable when dark in its hues, and the eruptive fever runs high. It commonly has a course of three or four days.

ROSEOLA VACCINA is an exanthem similar to the preceding, which accompanies sometimes the development of the vaccine vesicle, appearing on the ninth or tenth day after vaccination. The rash begins in the neighbourhood of the vaccinated spot, and spreads upon the arm and trunk, and sometimes over the greater part of the body. Its course is rarely more than two days, but it is attended with some feverishness.

ROSEOLA RHEUMATICA ET ARTHRITICA.—Rheumatism and gout are both occasionally accompanied with a roseolous rash, appearing in the form of a circular blotch (*roseola maculosa*), and usually on the lower extremities. Sometimes the roseola precedes the attack, and sometimes makes its invasion during the progress of the principal disorder.

ROSEOLA CHOLERICA has been described by Rayer as a roseolous exanthem accompanying the progress of the Asiatic cholera. It sometimes resembled scarlatina, sometimes measles, and sometimes urticaria; was associated with congestion of the fauces and the usual train of febrile symptoms; and was brightly tinted at first, but subsequently acquired a dirty pink or rose-colour.

ROSEOLA FEBRIS CONTINUÆ is the punctated exanthem which so commonly accompanies continued fever, and is met with in all the three varieties, typhus, typhoid, and relapsing fever. It makes its appearance at the beginning of the second week, and is scattered sometimes over the entire body, sometimes on the trunk alone, and sometimes on the limbs, particularly the back of the hands, but rarely on the face. In typhoid fever the

exanthem has a bright rose-colour, and disappears on pressure with the finger and after death. In typhus it is mulberry-coloured: it continues on pressure with the finger, and remains after death, when it presents the appearance of petechial spots. The exanthem of relapsing fever also acquires very quickly a dark colour, and passes into the state of petechiæ. Each spot has a course of three days, and fresh spots appear every day; so that after the first three days they may be seen in all their stages—crescent, mature, and fading.

Under the very objectionable name of *roseola miliaris*, Bate-man has noticed the occurrence of miliary vesicles or sudamina in conjunction with the roseolous spots of continued fever. These vesicles are most frequent in relapsing fever; but they appear in all the three forms, and most abundantly during the prevalence of copious perspirations. They are met with chiefly on the neck and breast, in the armpits, and on the sides of the chest.

DIAGNOSIS.—Colour, figure, and febrile symptoms, are the three leading signs by which roseola is to be distinguished from other cutaneous affections: the pink or bright crimson tint deepening into the hue of the damask rose, and fading often into the shadows of a bruise; the punctiform, closely-set dots grouped in clusters; the rings commonly narrow and fine, but sometimes broad; the puncta, and the blotches; the congested fauces; and then the fever sometimes slight and ephemeral, and sometimes severe. But even with all these symptoms before us, it is often difficult to decide between a case of roseola and one of mild rubeola, and we are constrained to call other evidence to our aid. If there exist an epidemic of rubeola, if the patient be affected for the first time; moreover, if there be coryza and a catarrhal cough,—the case is undoubtedly rubeola. In roseola there is rarely any coryza, and still more rarely catarrh.

CAUSE.—The cause of roseola is debility, which may be nutritive, nervous, or assimilative. The exciting cause is probably change of weather or seasons; alternations of heat and cold; and errors of diet. Hence we find it occurring very commonly in the spring and autumn, in the summer, and sometimes prevailing in an epidemic or endemic form.

Reduced power in the system, and a relaxed and weakened state of the skin, are conditions favourable to the development of roseola; hence probably its association with diseases of debi-

lity, such as rheumatism, gout, fever: and hence also the tendency of the exanthem to pass into the condition of purpura.

PROGNOSIS.—Roseola is by no means a serious affection either in its idiopathic form, or as a complication of more serious maladies. In a chronic form it indicates a general state of disorder of the economy, which we must endeavour to correct.

TREATMENT.—Gentle laxatives, effervescent salines, light broths with the mineral acids, small doses of quinine with sulphuric acid, mild chalybeates, constitute the pharmacopœia of roseola, both in its idiopathic and in its chronic form. Locally it is better left alone; but if much irritation be present, the skin may be washed with the juniper-tar soap and tepid water.

The diet should be of the antiphlogistic kind; namely, toast-water and barley-water, with or without chlorate of potash or lemon-juice, for drinks; with milk diet, farinaceous puddings, broth, eggs, fish, poultry; returning by degrees to the ordinary diet of health.

CHAPTER V.

BULLOUS AFFECTIONS.

BULLÆ is the type of one of Willan's orders, and presents an unmistakable character. His definition of bulla or bleb is, "a large portion of the cuticle detached from the skin by the interposition of a transparent watery fluid." This definition applies very exactly to one of the members of the present group, namely, to pemphigus; but less well to herpes, which Willan treated as a vesicle, and admitted into the same order with eczema; and still less to miliaria, which is truly a vesicle. Herpes is a large vesicle, or small bulla; and although differing entirely in its nature both from vesicular affections and from pemphigus, seems entitled, from the possession of this special pathological form, to a place, for the present at least, in the bullous group; and the more so, as some of the varieties of herpes are really allied more closely to pemphigus than they are to herpes. And as we have broken up the order Vesiculæ, by the dispersion of its different members, this is also the proper place for the consideration of the small bleb or vesicle of miliaria.

The diseases constituting this group are three in number; namely —

Herpes

Miliaria

Pemphigus

HERPES is derived from the word *ἑρπην*, "*quod est*," says Acturius, "*serpere per summam cutem*;" but this is clearly an error as applied to the typical form of herpes, herpes zoster; for herpes does not creep, although some of its chronic varieties, which belong rather to pemphigus than to herpes, namely, herpes circinatus and herpes iris, really do so. The term *ἑρπης* was applied by the ancients to a creeping and eating form of eruption, sometimes vesicular and sometimes ulcerative, and appertaining to the strumous, the syphilitic, and the cancerous affections.

PEMPHIGUS is derived from *πμφίξ*, *bulla*, a water bubble, and is used synonymously with pompholyx, an air-bubble; *πομφολυγες* being "the bubbles of air which appear upon water;" and *πομφοι*,

according to Galen, "eminences of the cuticle containing a fluid." Another term was applied by the ancient Greek writers to this affection, namely, *φλυκταινα*, latinized into phlyctenæ, from *φλυν*, to bubble or boil up, or over; hence the name of one of the varieties of herpes, namely, herpes phlyctenodes.

The general signification, therefore, of these terms, as applied to the diseases contained in this group, is: herpes, an eruption of bullulæ or small bullæ; miliaria, an eruption of large vesicles; and pemphigus, an eruption of large and undoubted bullæ.

HERPES.

HERPES is an inflammation of the skin, occurring in patches of a more or less circular figure: upon these patches are developed a crop of vesicles, which gradually rise up from the inflamed ground, and attain a semi-globular figure. The vesicles begin to appear on the second day of the inflammation: they are at first transparent, and attain their full size, that of a small pea, in one or two days; on the second or third day, they are opalescent; sometimes of a grape-yellow colour, sometimes purplish and wrinkled. On the third or fourth day, they shrink still further, and form a reddish-yellow wrinkled scab. On the fourth, fifth, and sixth days, the scab becomes dark-coloured and hard, and has the appearance of being imbedded in the skin; and on the three following days the scabs fall, and leave behind them purplish pits.

This is the history of an individual patch, and of an individual crop of vesicles; but as the patches come out in succession for two or three days, the eruption is generally prolonged until the tenth or twelfth day. The patches are commonly oblong in figure, the long diameter of the patch corresponding with the course of the nerves of the region on which they are developed; and they vary in size from half an inch to two inches in diameter. They are brightly red, very slightly swollen, and the number of bullulæ varies from three or four to twenty or more. Generally, the vesicles are separate and discrete, but sometimes confluent; in which case, several may run together, and constitute a bullula of irregular form. The yellow tinge in the vesicles seen at the beginning of their decline, is probably due

to the conversion of the cells of the rete mucosum into pus; and their purple hues to the admixture of blood with the original lymph, the effusion of blood being due to pressure on, or friction of the patches.

Sometimes, and particularly in elderly persons, the eruption does not finish so simply, but terminates in deep and painful ulcers, which may last for a considerable time. The ulcers are occasioned by undue pressure or friction of the eruption, in a state of skin lowered in vitality by age, or by a cachectic condition of the constitution. The scabs which form upon the ulcerated spots are very adherent, and when they are removed, leave deep pits of a purple hue, like those of small-pox, and permanent cicatrices.

It follows from this description that herpes is not simply an eruption of large vesicles or bullulæ; it is, besides that, an inflammation, having a given course, and running that course in a given time; in other words, it is a specific affection, obeying special laws of its own, and differing from the ordinary physiological laws of the economy. But there is another phenomenon of considerable importance in connection with herpes, namely, affection of the nerves of the part,—a neuralgic affection. Herpes is essentially an inflammation of nervous origin: the first irritation is that of a nerve; the inflammation and its vesicular development are the consequences. Herpes is therefore accompanied with severe nervous pains, but not always, and not in the majority of cases, and therefore a difficulty arises regarding it as a pure nervous affection.

The pain of herpes is of two kinds, one being constant, the other occasional; the constant pain is local in its situation, the occasional pain is that of a nerve, commonly a single nerve, and sometimes of all the nerves of the affected region. The neuralgic pain sometimes precedes the eruption, and ceases as soon as the cutaneous inflammation begins; sometimes it accompanies the eruption, and sometimes continues for weeks, months, or even years, after all eruption has ceased; and the patches commonly travel in the direction of the branches of a nerve. For example, herpes zoster, the true *cingula* or shingles, takes the course of an intercostal nerve; the first patch is probably developed near the middle line on the front of the body, at the spot where the anterior cutaneous nerves are distri-

buted to the skin; the second patch will possibly occur upon the seat of distribution of the posterior cutaneous nerve and the third patch over the lateral cutaneous nerves; other patches taking up intermediate positions upon the same line while in a partial form of the eruption, a single patch only or two patches may be present, namely, the anterior, or the posterior, or both, without any intermediate patches to form a link.

The local pain of herpes is one of intense burning; hence its ancient title *ignis sacer*, associated with tingling, pricking as with hot needles piercing from within, and itching; and this pain continues throughout the whole course of the eruption.

The varieties of herpes may be considered as constituting two groups,—a *neurotic group*, corresponding with the typical form of the affection just described, at the head of which stands herpes zoster;—and a *phlyctenoid group*, represented by herpes phlyctenodes. They are as follows:—

ACUTE.	CHRONIC.
Herpes zoster	Herpes circinatus
“ phlyctenodes	“ iris
“ labialis	
“ præputialis	
“ palpebralis	
“ nasalis	
“ auricularis	
“ pudendalis	

HERPES ZOSTER,* or SHINGLES, is remarkable from its embracing one-half the trunk of the body; in other words, taking the course of the anterior branch of the spinal nerves. It is commonly met with in association with an intercostal nerve, sometimes with a cervical, a brachial, or a crural nerve. Its usual position is around one-half the waist; and as it has never been known to attack the two sides of the trunk at the same time, the popular notion, referred to by Pliny, has arisen, that were it to do so the result would be fatal.† From half-encircling the waist, it has been termed *zona* or girdle, and again *cingula*, from

* Ζώνη, a belt.

† “Zoster appellatur, et enecat, si cinxerit.”—Pliny.

which latter term its popular name *shingles* has been derived. Besides the waist, we have seen it on the flank, on the hip, on the thigh, on the shoulder, on the neck, and upon the head. On the head and face it occupied chiefly the occiput, the temple, and the forehead, while one vesicle was developed on the conjunctiva. On the limbs it takes the course of the cutaneous nerves, as of the shoulder and thigh. Bateman calls a case of the latter kind *herpes proserpens*.

Usually the eruption of *zoster* takes place without any premonitory sign, and runs through its course without much suffering, with no other pain in fact than the burning and tingling which constantly accompany it, and which have gained for it the name of *zona ignea*; at other times, when the neuralgic affection is severe, the internal organs are apt to suffer also from the communication of their nerves with the intercostal nerves; thus, there may be intense shooting pains through the chest, with tumultuous action and palpitations of the heart. And sometimes the eruption is accompanied with febrile symptoms, which are as likely to arise from the ordinary cause of the eruption, namely, a chill, as they are from the nervous perturbation accompanying the disease.

On the subsidence of the eruption, the neuralgic pains, of a very severe kind, are apt to be continued for some weeks, and to resist every kind of treatment. It has been stated that the eruption attacks one side of the body more frequently than the other. This is not the case; the two sides are equally the subject of the affection. Its seat of eruption is commonly determined by the direction in which the cold which causes it is applied, and sometimes by a temporary or permanent debility of the part. We lately saw a case which had arisen from a chill in bathing, and an inordinately long walk which had strained the muscles of the hip: the eruption broke out on the weakened part.

Herpes zoster enjoys no immunity from the variations that accompany most other natural phenomena, and especially those of disease. This affection may be said to have three principal symptoms; namely, inflammation of skin, eruption of vesicles, and neuralgic pains. We have now to state that one or other of these symptoms may be occasionally absent; for example, there may be inflammation and pain without vesication; or

there may be inflammation and vesication with a scarcely appreciable amount of pain. And in a fully developed zoster, some of the patches may be studded profusely with vesicles, while on others they are scanty or absent. In these cases we signify our meaning by the use of the term "arrest of development."

HERPES PHLYCTENODES differs from herpes zoster only in situation, being identical in every other respect. Thus, when herpes attacks the trunk of the body and forms a *démizome* around it, the case is one of herpes zoster; but when, as we have already described, it appears upon a limb, upon the neck, or upon the head and face, it is more correct to term it herpes phlyctenodes.

Herpes phlyctenodes may occur as a single patch, or as a cluster of several, on any part of the body. The patch rarely exceeds in size the palm of the hand, and it consists of an inflamed surface studded over with vesicles, sometimes discrete and sometimes confluent: occasionally the vesicles are so small as to have suggested the term *herpes miliaris*; more frequently they attain the size of peas of moderate dimensions.

The patches commence with a sensation of burning, tingling, and smarting; some red puncta are seen on the painful spot, a blotch of redness succeeds, and on the inflamed surface the vesicles are developed. Sometimes there is a deep-seated soreness and pain as well as that already described. It is rare for any constitutional symptoms to be present.

HERPES LABIALIS represents the local forms of herpes, all of which, like herpes zoster and herpes phlyctenodes, are acute forms of the affection, and have their regular course, never exceeding ten or twelve days. Some occur only once, or if the attack be repeated, it is accidental, and occurs at an uncertain period; while one of the local forms, herpes præputialis, is intermittent, and breaks out at short intervals for a considerable period of time.

Herpes labialis, a frequent consequence of an inflammatory cold, or of slight febrile disturbance of the system, begins with itching, redness, heat, swelling, and painful tension of the lip and adjacent mucous membrane. On the day following the beginning of the inflammation, five or six small vesicles appear on the affected spot; some of the vesicles congregate and form small cellular bullæ of the size of a split pea. On the third of

fourth day the lymph of the vesicles becomes turbid and lactescent, and subsequently semipurulent. On the fifth or sixth **day** the vesicles desiccate into a brownish crust, and on the **eighth or tenth day** the crust falls. When the crust is interfered with during its progress, or the inflammation is aggravated by interference, a hard scab is formed, which remains adherent for a longer period than the natural crust.

HERPES PALPEBRALIS, NASALIS, ET AURICULARIS, are identical with herpes labialis, but usually less extensive and less severe. In herpes palpebralis the inflammation and vesicles are developed on one eyelid; in herpes nasalis along the margin and upon the ala of one nostril; and in herpes auricularis upon the lobe of one of the ears and not on the other. In symptoms, course, and termination, these forms correspond with herpes labialis.

HERPES PRÆPUTIALIS may occur upon the mucous or upon the cutaneous surface of the prepuce: it consists, as do the other local forms, of a blotch of redness surmounted by a small crop of vesicles, and attended with a sensation of smarting and burning; on the prepuce the blotch is rarely larger than half an inch in diameter; the vesicles found on the cutaneous surface subside after a few days, from the absorption of their fluid contents, and dry up into small thin brownish scabs; but the vesicles on the mucous surface are generally broken, and produce minute excoriations, which are often slow in healing and are liable to be mistaken for syphilitic ulcerations.

Herpes præputialis presents the peculiarity of being intermittent, returning from time to time for several months or even years. It rarely occurs without a foregone irritation of the organ, either in the shape of a gonorrhœa or chancre; and then seems to perpetuate a remembrance of the original disorder. We know a gentleman who, after the cure of a chancre, suffered during two years with fourteen attacks of herpes præputialis, each attack lasting about ten days. The last time that the eruption made its appearance it showed itself on the cutaneous surface of the derma and root of the penis of one side.

HERPES PUDENDALIS corresponds in every respect but situation with herpes præputialis; it is developed on one labium.

CHRONIC FORMS.

The CHRONIC FORMS of herpes are distinguished from the acute forms by their more general distribution; by their longer duration; by a more superficial inflammation of the skin; by a tendency to spread; by less severe local suffering; by an absence of neuralgic pain; and by a disposition to the production of larger vesicles, and often bullæ, *herpes bullosus*; in a word, the chronic forms of herpes prepare us for a transition to the bullous affection pemphigus. The varieties belonging to the chronic group are herpes circinatus and herpes iris; they have no special constitutional symptoms.

HERPES CIRCINATUS makes its appearance as red and slightly raised spots, which are accompanied with considerable tingling and itching, and are apt to be mistaken for the bites of insects. In a few hours the spot spreads into a blotch half an inch in diameter, and soon after increases to the diameter of an inch or two inches. When it is larger than half an inch, it is found to be slightly depressed in the centre; and with a further increase of dimensions, the redness of the centre fades and becomes yellowish, and a ring is produced. In the growing disk and growing ring the peripheral border is observed to be a little raised above the level of the rest of the surface, and is somewhat brighter in its tint of red: it is at this part that vesication begins, and the cuticle is raised into vesicles as large as peas upon the belt of the rings in the course of a few hours. The progress of the eruption is so rapid that that which is a sprinkling of mere itchy spots at night, and a disturber of sleep, may, in the morning, be a crop of annular rings, each surmounted with a circle of glistening bullulæ as large as moderate-sized peas. The vesicles are filled with limpid lymph, sometimes changing to opalescence and milkiess; they become wrinkled and collapsed in the course of the following day, and in a day or two more are converted into thin brownish and blackish scabs. The redness fades with the collapse of the vesicles; the cuticle of its base exfoliates, and in a few days no trace of the patch remains. But as the eruption is successive in the development of the annuli, it may continue for ten or twelve days, or even for a longer period of time.

The development and maturation of the disks and rings is

accompanied with more or less tingling, itching, and smarting, and these sensations subside with the patches; but as the latter are produced in succession, and commonly during the night, the pruritus is often exceedingly annoying. The ordinary size of the annuli is two inches in diameter; sometimes they are a little larger; and when the eruption takes place suddenly, at the first outburst of the disease, they may be smaller. In a case in which the limbs and part of the trunk of the body were nearly covered with the eruption in the course of two days, the physician who attended the patient remarked that it was a sight worthy of being remembered. The eruption was still troublesome in this case, although progressing towards cure, at the end of two months.

Occasionally from the beginning, but more frequently in the course of a chronic case of this disease, there are modifications of development of the eruption which are deserving of note. In the first instance there may be, scattered among the vesiculated rings, red blotches or disks, showing no disposition to vesiculate; and secondly, there may be disks of moderate size completely covered by a single large bulla; and were it not for the general history of the complaint, we might be induced to pronounce the case to be one of pemphigus. In the example of herpes circinatus above noticed, in which the first attack of the eruption was developed suddenly, both the rings and the vesicles were pretty uniform in size over the whole body. As the case went on, the dimensions of the patches diminished, and in place of a row of vesicles, a single large bleb was produced; and later, when the patient's general health was improved with the aid of tonics, the effusion ceased to occur, and irritable erythematous disks only were apparent.

HERPES IRIS is a lower form of herpes than herpes circinatus. It is essentially, like some of the exhausted patches of the latter complaint, a *herpes bullosus* propagated from the centre by a series of efforts, too feeble to produce a row of independent vesicles, and resulting only in the formation of annular ridges more or less distended with a serous fluid—it is, in fact, an aborted form of herpes circinatus.

Herpes iris occurs very commonly on the back of the hands of elderly persons; and here the disks are small, and the central vesicle equally so. When the affection shows itself on the limbs,

and in persons of reduced power, the central vesicle is an undoubted bulla, and the disk or patch may attain the dimensions of one or two inches in diameter.

The process of formation of herpes iris is as follows: An inflamed spot or disk first makes its appearance; the day following, this disk is covered by a vesicle or bleb, while a narrow border of red appears around its circumference; on the third day the narrow border of red is raised into a vesicular ring, and the redness has crept on for another stage, forming another narrow border of red; on the fourth and successive days, the same phenomena are repeated until the disk has attained its full size. The effusion, it will be observed, is most abundant in the central vesicle, and diminishes as the rings increase in number. The first ring is more distended than the second, the second than the third; with the third, the effusion generally ceases, and the rings developed beyond the third are simply erythematous, and distinguished only as shades of red.

The development of the disk of herpes iris undergoes some modifications: occasionally, as in the disks observed on the back of the hands and feet of elderly persons, it never reaches beyond the erythematous stage, and has been named, in consequence, *erythema iris*. At other times the central bulla creeps on with the enlarging erythematous line and forms a bleb, often of considerable size, *pemphigus iris*; absorbing, as it proceeds, the annular vesicles of the circumference. In the erythematous form, as seen upon the hands, there are commonly not more than three shades of colour; the centre red, the first ring whitish yellowish, and beyond this a narrow halo of light crimson. In other parts of the body the number of rings may be increased to five or six, or even more. By watching the disks from day to day, we have observed in some cases that a new ring is produced daily, so that the number of rings determines the length of duration of the patch. In one disk we counted seven rings, representing seven days, and seven circles of fading between them, the outermost white ring being bounded by a narrow areola of pale crimson; while in another disk, only an inch in diameter, there were nine different tints of red, which, from the centre to the circumference, were as follows: red, brown, white, deep red, lighter red, deep red, pale red, yellowish white, and crimson blush. This appearance

eruption sufficiently warrants the designation "iris" given to it by Willan.

Herpes iris has no constitutional symptoms: it is always associated with debility, as in the debility of elderly persons, and sometimes, as in children, with nutritive debility and cachexia. It is in a cachectic state of the constitution that it more frequently takes on the pemphigoid form.

DIAGNOSIS.—The diagnosis of herpes turns upon the size of the vesicles, larger than those of eczema and miliaria, smaller than the bullæ of pemphigus; upon the burning, tingling, pricking, and smarting itching; upon the frequent presence of neuralgic pains, and upon the orderly course of the eruption. The local varieties have small vesicles, sometimes multilocular vesicles; but they are always developed upon a patch of redness, and are accompanied with the pathognomonic tingling, smarting, and burning of herpes. Herpes circinatus is recognized by its circle of vesicles or bullulæ, and herpes iris by its centrifugal rings starting from a central umbo.

CAUSE.—The cause of herpes zoster, herpes phlyctenodes, and herpes auricularis is a chill, sometimes proceeding from a cold current of air, as in the prevalence of easterly winds, or sitting in a draft when the body is heated; or sometimes from the direct application of cold, as from sitting or lying on the ground, or the wearing of damp clothes. Herpes labialis, nasalis, and palpebralis, usually proceed from irritation of the adjoining mucous membrane, and follow a feverish cold or catarrh; and herpes præputialis and pudendi originate in some irritation of the neighbouring mucous membrane. We have never seen an instance of herpes præputialis in which there has not previously existed a gonorrhœa, a leucorrhœa, or some syphilitic affection. The cause of herpes circinatus and iris is a debility, a lowered tone of the system, sometimes referrible to nutritive, sometimes to assimilative, and sometimes to nervous causes. We have at present under our care a patient who has suffered from herpes phlyctenodes, spring and autumn, for several years, the eruption being each time preceded by a bilious attack.

PROGNOSIS.—Herpes is not a grave affection and is sometimes very trivial. In the neuralgic forms the pain is often terrible, and very difficult to conquer. The circinate form and herpes iris, as they indicate a general debility proceeding from a gene-

ral derangement of health, are of most importance in reference to the health and safety of the patient.

TREATMENT.—The treatment of herpes zoster, phlyctenodes, and the local forms, when unaccompanied with neuralgic pain, is purely local; if neuralgia be present, constitutional as well as local treatment will be requisite; and the chronic forms also call for constitutional as well as local remedies.

As the acute forms of herpes are limited in extent, and have a regular course of a certain number of days' duration, all that we are called upon to do in the majority of cases is to protect the inflamed skin from pressure or friction. To this end we shall find no better means than dredging the eruption copiously with flour, and confining it there by means of a sheet of cotton wool, held in its place by strips of adhesive plaster or a bandage, not too tightly applied. We have also found a thick coating of the benzoated ointment of oxide of zinc, afterwards covered with a sheet of cotton wool, and retained in its place by strips of adhesive plaster, very successful. When the burning heat and tingling are very troublesome, we have obtained ease from arrowroot poultices, made by filling a muslin bag with arrowroot jelly and applying it cold; and at other times, from folds of flannel saturated with a decoction of poppy-heads.

Experiments have been made with ectrotic remedies, but their advantage has not been fully established; the best of these is a solution of nitrate of silver in nitric ether, which we have known give considerable relief; it is a good application for all the local forms, particularly herpes præputialis. We have sometimes applied a solution of potassa fusa, in equal parts of water, with the result of immediately checking the course of the eruption. Another mode of using the nitrate of silver, is to puncture the vesicle and after absorbing the serum to touch its base with a point of the caustic; with the local forms this plan answers extremely well.

In the neuralgia of herpes we must have recourse to quinine, citrate of quinine and iron, and arsenic; or if there be evidence of a rheumatic diathesis, iodide of potash; and of a gouty diathesis, colchicum; and as sedative remedies, to belladonna, hyoscyamus, morphia, and chlorodyne. Locally, the treatment must be sedative and stimulant: preparations of aconite, belladonna, morphia, chloroform, cajeput, may all be used in their turn.

We have employed a blister without much result, and have derived the greatest advantage from the oleum juniperi pyrolignici, combined with chloroform and tincture of aconite.

The chronic forms of the eruption should be washed with the juniper-tar soap, and sponged with a lotion of the juniper tar, or with hydrocyanic acid in emulsion of bitter almonds, to allay the itching; and afterwards anointed with the benzoated ointment of oxide of zinc, with spirits of wine or spirits of camphor, or a simple camphor cerate. When the vesicles are broken and the corium excoriated, dressings of the benzoated ointment of oxide of zinc on lint should be applied.

MILIARIA.

MILIARIA is the name which is given to an eruption of small globular vesicles of a size corresponding with that of the *malium*, or millet-seed. They are the consequence of a weak and exhausted state of the skin, induced by heat and perspiration, and are commonly associated with fevers, with the puerperal state, with rheumatism, or with any ailment which renders confinement to bed for a lengthened period a necessary condition. From the latter circumstance the eruption has been termed *miliaria clinica*, and, from its combination with perspiration, the vesicles have been named *sudamina*.

The vesicles of miliaria are larger than those of eczema, but smaller than the vesicles of herpes, and, necessarily, very much smaller than the bullæ of pemphigus; nevertheless, they are frequently of a size to suggest the idea of the former, while in their origin they have some of the characters of the latter. They originate in a debilitated condition of the cutaneous tissues, like pemphigus; like the latter disease also, they indicate an exhausted state of the vital power, and they are produced with little cutaneous congestion. But, unlike pemphigus, they are generally symptomatic of an independent febrile state of the constitution, and their course is acute.

At their first eruption the vesicles are filled with a transparent and limpid serum, which reflects the colour of the denuded derma at their base. This gives them an appearance of redness, and has gained for the disorder the name of MILIARIA RUBRA.

But in twelve or twenty-four hours the serum becomes opalescent, whitish, and milky, and in this state the appearance of the vesicles has given origin to the term **MILIARIA ALBA**.

The vesicles are met with most frequently on the sides of the trunk of the body and upper arms; in the axillæ; on the back and on the neck; in situations, in fact, the most likely to suffer from heat and perspiration during illness. They are sometimes evolved in patches of various size, but, more commonly, are scattered singly over the surface. They appear in succession, each fresh outbreak lasting three or four days, but the eruption, as a whole, continuing for one or two weeks. The vesicles sometimes break, but more frequently collapse, from absorption of their contained serum; and the desiccated cuticle forms a small thin scab, which in a short time is removed by desquamation.

Miliaria has no constitutional symptoms; but its association with fevers has suggested the term *miliary fever*, formerly applied to it. Indeed, there seems to be good reason for the belief that its frequency in former times, and its comparative rarity at present, are to be explained by the better method of treating fever in our own days, and the preservation of a cooler state of the body; the condition the most favourable for the production of miliaria, being a hot and perspiring state, such as would result from hot rooms, excess of bedclothes, and heating regimen and remedies. To these latter conditions in particular is to be referred the miliaria of puerperal patients. Miliaria is generally accompanied with sensations of languor, of extreme exhaustion, and a feeling of faintness; symptoms which are attributable to the perspirations, rather than to the eruption; and the perspiring state of the skin is also made evident by the strongly acid odour of the sick-room.

DIAGNOSIS.—The size of the vesicle is pathognomonic, as is also the absence of inflammatory congestion at its base. It is smaller than the vesicle of herpes, generally scattered, and wanting in the burning, tingling, and pricking of the latter; while it is too small to be mistaken for pemphigus; indeed, is a vesicula and not a bulla.

CAUSE.—Debility of cutaneous tissue, generally the consequence of too much heat, and a resulting excess of perspiration.

PROGNOSIS.—The prognostics of the eruption are dependent

On the illness with which it is associated, or upon the degree of power of the constitution.

TREATMENT.—The constitutional management of miliaria must be directed to the cure of the disease with which it is associated. Its local or special treatment must have for its object, to give tone to the tissues of the skin, by means, for example, of tepid baths; of washing with tepid water and the juniper-tar soap; of sponging with a tepid solution of ammonia, of a strength sufficient to act as a mild or tonic stimulant; or with tepid vinegar and water. These are means that cannot affect injuriously the disorder in chief, but may possibly be of use to it. In a more prostrate condition of the system, we may prescribe the powder puff; and as the body acquires strength, we may venture to reduce still further the temperature of our local applications.

PEMPHIGUS.

PEMPHIGUS is an eruption of bullæ arising from a very slightly inflamed ground, and distributed more or less extensively over the surface of the skin. The bullæ arise in the course of a few hours, with some tingling and smarting, and often without redness. They are distended with a serous fluid, burst in one or two days, and leave an excoriated surface, which soon becomes covered with a thin brownish or blackish scab. On the desquamation of the scab, the skin is left of a dull red tint, sometimes livid, and frequently stained with brownish discolorations.

The bullæ vary in bulk from the size of a pea to that of the hemisphere of a walnut, or a hen's egg; they commonly cover the whole of the inflamed disk on which they arise; and their contents, at first limpid and straw-coloured or amber-coloured, become opalescent and milky; sometimes semipurulent, and not uncommonly purple, from admixture with blood. Sometimes, instead of bursting and leaving a red and angry excoriation prone to bleed, the bullæ become wrinkled and collapsed, and dry up into a thin corrugated scab, which is either greyish, light-brown, or black, according to the character of the serous contents; and sometimes the collapse is only partial, covering

part of the base, and leaving a vesicular roll around a part of the circumference; and sometimes this last-described corrugated and collapsed form is present from the beginning, and never rises to a fully-developed bulla, but forms on desiccation a thin corrugated scab, which being frequently oval in outline, suggests the idea of a dried leaf adhering to the skin: this appearance has given origin to the term *foliaceous*, applied to one of the varieties of pemphigus.

The bullæ of pemphigus are commonly thrown up in clusters of three or four, to twelve or even a greater number, and not unfrequently have separate bullæ dispersed between the groups. Each bulla runs its course in one or two weeks; but as others appear in succession, a few fresh clusters occurring every day, or every two or three days, the eruption is prolonged for some weeks, and more commonly for several months or years. The affection is therefore essentially *chronic*, and differs in different persons only in degrees of chronicity; the term *acute* is not reasonably applicable to pemphigus. Occasionally the disease is limited to the production of a single bulla, *pemphigus solitarius*, which attains a very considerable size, often as large and even larger than a large orange.

Pemphigus has been called *acute*, in consequence of being occasionally preceded by a little fever, and terminating in a few weeks; but in general it is chronic and lasts for a considerable period. It usually denotes a low and debilitated and cachectic state of the constitution, and is associated with bleeding from the excoriated skin; vesication of the mucous membrane of the mouth, nose, vulva, and vagina; and hæmorrhage from the bowels, from the kidneys, and sometimes from the stomach and lungs. The skin in general corresponds with this morbid state, and is often dry, shrivelled, and discoloured.

The local suffering attendant on pemphigus is a moderate amount of itching, tingling, and smarting on the first appearance of the eruption, and extreme soreness and sensitiveness in the state of excoriation. We have met with one case in which there was a blending of the pruritus and desquamation of eczema with the partially and irregularly formed bullæ of pemphigus. This case we noted at the time of its occurrence as a pemphigoid eczema, and we find a similar case described by Hardy under the name of *pemphigus pruriginosus*. The cause of the affection

was identical with that of our own, namely, utero-gestation; the eruption commenced at about the sixth week of pregnancy, the patient on several occasions deriving the first notice of her state from the irritation of her skin, and continued during the whole period of gestation; and the symptoms were so severe as in one instance to result in miscarriage.

Pemphigus is happily a rare affection, and more rare possibly in this country than in others. It is more frequent in women than in men, and is most common in children. Amongst the children of the poor it is apt to show itself in the form of purple and livid spots that tend to gangrene, *pemphigus gangrænosus*; and amongst the ill-fed poor in Ireland, the gangrenous form sometimes prevails as an epidemic.

There are few affections to which so many varieties have been assigned as pemphigus, and its synonym pompholyx; for example, pemphigus congenitus, infantilis, simultaneous, successivus, solitarius, confluens, confertus, acutus, chronicus, pyreticus, apyreticus, vulgaris, benignus, diutinus, contagiosus, gangrænosus, foliaceus, pruriginosus, &c.; but for practical purposes they may all be included under the five following heads; namely,—

Pemphigus vulgaris
 „ *solitarius*
 „ *gangrænosus*

Pemphigus foliaceus
 „ *pruriginosus*

PEMPHIGUS VULGARIS is the common and usual form of the affection: in its milder form, and lasting only a few weeks, it has been termed pemphigus acutus and pompholyx benignus; but as we have already shown, its symptoms are not sufficient to characterize an acute disease; and all we can accord to it is that it is less chronic in some cases than it is in others, and undoubtedly milder, *benignus*.

Sometimes some slight febrile disorder precedes the eruption; but at other times it is unattended with any symptoms but those which belong to the depressed state of health in which the disorder originates.

The chronic form of pemphigus vulgaris is distinguished by the prolonged continuance of the eruption, lasting sometimes for several years, and its obstinate resistance of treatment. A patient before us, a young unmarried woman, aged 26, suffering from

this complaint for six months, had purpura which covered the lower half of the body, and was accompanied with epistaxis, seven years ago, and for the last five years she has been the subject of amenorrhœa.

PEMPHIGUS SOLITARIUS is a peculiar variety of the eruption, remarkable for the production of a single bulla, which attains to a very large size, often as big as an orange. It is preceded by a sensation of tingling and smarting, and in a few hours the bulla has attained a considerable size. At the end of two days it bursts and leaves behind it a painful excoriation, which becomes covered with a thin greyish scab. After the lapse of a few days, a second bulla appears near the seat of the former, and runs a similar course, to be followed in succession by five or six more; so that the attack is prolonged for ten days or for a fortnight.

PEMPHIGUS GANGRÆNOSUS.—Under the name of *pemphigus infantilis*, Willan describes an eruption which has since received from Dr. Whitley Stokes the more appropriate name of *pemphigus gangrænosus*. It occurs in children, and in Ireland sometimes prevails as an epidemic among the poor. It makes its appearance in the form of small, imperfectly developed, generally flattened bullæ, rising upon a purplish and livid base. The bullæ are filled with a sanguinolent and sanious fluid; they burst in two or three days, and expose an ulcerating and frequently sloughing base; the ulcers are painful, have thin livid edges, and secrete a sanious and fetid pus; frequently they enlarge by their circumference, and when they heal, are slow and tedious in their progress towards cure. By successive eruptions the disease is continued for some weeks; it gives rise to irritative fever, destroys rest, induces general disturbance of nutrition, and finally exhausts the power and vitality of the patient.

In Ireland this eruption is popularly known as *white blisters*, *eating hive*, and *burnt holes*, and "death takes place about the tenth or twelfth day, often preceded by convulsions, sometimes by extreme lividity."

PEMPHIGUS FOLIACEUS is a variety of the eruption, arising from imperfect development of the bulla; the cuticle is raised from the corium to a superficial extent, and instead of going on to the full development of a bulla, dries up into a thin corru-

gated greyish or brownish scab. When partially separated, the scabs give a ragged appearance to the skin, particularly when they are abundant; and when they are shed, are frequently replaced by other scabs of similar formation. At first, there is a sprinkling of fully or partially-formed bullæ, with the scales; but after a while, the desquamation exists alone, the skin being deeply congested and exuding a serous secretion. The foliaceous scabs are produced with such activity, that in a few hours, according to Hardy, the bed of the patient is filled with them. At a later period of the disease, when the skin is about returning to its natural state, there is a reappearance of the bullæ.

PEMPHIGUS PRURIGINOSUS is a peculiar form of the bullous eruption, associated with general redness and infiltration of the skin, and an appearance resembling chronic eczema. The above title was given to the disease by Hardy; and the case by which he illustrates the affection was one of utero-gestation: we have ourselves met with a similar case, and can confirm his observation. The bullæ are imperfect, frequently forming no more than a serous roll along the circumference of the patch; but they exist very numerous distributed over the surface of the body. In our own case the eruption occurred with every pregnancy, and at last grew to be insupportable.

DIAGNOSIS.—The distinctive characters of pemphigus are, its large vesicles or bullæ. The large vesicles of herpes circinatus often approach in size those of pemphigus, and as we have seen, constitute a transition-link with pemphigus itself.

CAUSE.—The cause of pemphigus is a general and local debility, approaching to cachexia. We have recorded two instances which followed local injury; in one of them, a servant girl "poisoned" her hand with a red paste, with which she was cleaning brass; a few days afterwards a crop of bullæ, intermingled with ecchymosed spots, came out on her wrist and forearm, and continued to trouble her from time to time for seven years. The other case was that of a medical man, who punctured his right hand; three or four weeks afterwards, an eruption of bullæ made their appearance on his left thigh, and were repeated from time to time for eighteen months. Their outbreak was preceded by feverish symptoms; there was a scalded sensation in the skin, and the next morning a fully developed bulla

would be discovered. It is often sympathetic with irritation or defective function of some part of the mucous membrane, and especially that of the uterine system.

PROGNOSIS.—As pemphigus is indicative of a serious amount of local and general debility, and as the cause of that debility is difficult of detection, and may depend upon some radical defect in the economy, the prognosis must always be doubtful and unsatisfactory. The ultimate result must depend upon the powers of the constitution, and these will be influenced very much by age, position in life, and other circumstances.

TREATMENT.—Treatment must be chiefly constitutional; any disorder of digestive function and secretions should be regulated, and then we must rely upon tonics; the bitters with mineral acids; cinchona with sulphuric acid; quinine; and citrate of quinine and iron. We have also derived good results from the use of arsenic.

If there be feverish symptoms, we may find it necessary to have recourse to effervescent salines, with ammonia; to sulphate of magnesia, with quinine and infusion of roses; and to chlorate of potash.

Locally, we should puncture the bullæ as soon as they are fully developed, in order that the cuticle may fall down upon the denuded corium, and form upon it a covering of protection; then we should dress the eruption with the benzoated ointment of oxide of zinc spread on lint, and afterwards cover the dressing with a sheet of cotton wool. We may, if occasion arise, vary this dressing with one of ceratum calaminæ, or simple cerate with which a few grains of the superacetate of lead (gr. v ad ʒj) have been rubbed down. If there be much sensitiveness of the excoriated skin, we may allay it by the use of a weak solution of nitrate of silver (gr. j—iij ad ʒj), and dress it as above, renewing the dressing night and morning, and keeping it in its place with adhesive strips or with a bandage.

In pemphigus foliaceus and pruriginosus we shall find ablutions with the juniper-tar soap and warm water of great use in removing the scales and relieving irritation; and afterwards we must anoint the surface with the benzoated ointment of oxide of zinc; or if the pruritus still be annoying, with the ointment

of the pyroligneous oil of juniper; the excoriations being dressed as above with the benzoated ointment of oxide of zinc rubbed down with spirits of wine or spirits of camphor.

The diet in pemphigus should be of the nourishing kind, meat and wine, unless any contra-indication arise.

CHAPTER VI.

FURUNCULAR AFFECTIONS.

UNDER the head of Furuncular affections, which properly includes Furunculus, Hordeolum, and Anthrax, we have likewise grouped Ecthyma, as being otherwise isolated, and as presenting several points of affinity with furunculus; for example, it is sometimes associated in the same eruption with furunculus; it is a disease of a pyogenic character; it very commonly ulcerates and sloughs; is essentially a disease of low constitutional power, and evinces a tendency on the part of the constitution to cachexia.

Ecthyma is a pustule; indeed is the type of the order Pustulæ of Willan, and is consequently united in that group with impetigo. From impetigo, however, it differs more than from furunculus; for impetigo is a psýdracious pustule, a sero-pustule, a surface affection, developed not singly like ecthyma, but in clusters, with less local inflammation, and without any tendency to ulcerate. Moreover, the alliance between ecthyma and impetigo is dissolved by the union of the latter with eczema; and in consequence of the removal of other diseases from the same order, would be left alone unless joined with furunculus.

The essential points of difference between ecthyma and furunculus are the frank suppuration of the former, and the presence of a core of cellular tissue in the state of gangrene in the latter.

ECTHYMA.

ECTHYMA, derived from *εκθυσιν*, to burst forth, is an eruption of large pustules dispersed over the body and limbs more or less extensively; rarely general, more commonly limited to a part, as to the lower extremities. The pustule is hemispherical in figure, distended with a deep yellow pus, mounted on a hard and prominent base, and surrounded by a red and highly inflamed areola. The pustule ulcerates more or less deeply; has

an average duration of ten or twelve days; dries up into a thick greyish-yellow or brownish scab, which is firmly adherent to the skin, and leaves at its fall a purplish red and pitted cicatrix. The pustules are successive, and the eruption is consequently prolonged for several weeks or months.

The eruption begins with a little itching and tingling, and with the appearance of a small inflamed pimple; the pimple increases in size, a little pus is formed on its summit, and it is quickly converted into a round hemispherical pustule, with a hard and inflamed base. The pustule bursts in three days, and the pus, together with the plastic lymph secreted by its base, dries up into a yellowish-grey and brown scab. If the scab be detached too soon, a small ulcer is exposed, which forms a secondary scab, which remains attached for a considerable time, and at its fall leaves a more extensive, and a deeper pit.

This is the *acute* course of the pustule, lasting for eight or ten days; and the eruption is said to be acute when it is composed of pustules of this kind, following each other in succession for three or more weeks; but in a cachectic state of the constitution, the pustules have a *chronic* character; the redness is of a deeper hue or livid; the pustule is purplish from the admixture of blood with the pus; at its rupture a painful, ulcerated, and often sloughing surface is exposed to view; the crust formed over this ulcer is more or less black; the edges of the sore are thin and livid; and the ulcer is slow in its progress, very painful, and of long duration. This character of the eruption is the basis of the varieties termed *ecthyma luridum* and *ecthyma cachecticum*; while in an extreme degree of cachexia there may be a gangrenous condition of the ulcer, and a condition warranting the adoption of the term *ecthyma gangrænosum*.

The pyogenic tendency of *ecthyma*, its proneness to ulceration, to sloughing, and sometimes to gangrene, indicate a low tone and debility of the constitution, that may be associated with symptoms of general disturbance of health and more or less fever of the hectic kind; but there are no constitutional symptoms that can be attributed specially to *ecthyma*.

The pyogenic condition of the system in *ecthyma* is indicated by the frequent presence of superficial abscesses; a disposition to suppurate in slight wounds and scratches of the skin; and the formation of whitlows; and the cachectic tendency of the consti-

tution is shown by the frequent occurrence of inflammation of the lymphatic vessels and glands.

The VARIETIES of ecthyma are acute and chronic. *Acute* ecthyma is the ecthyma vulgare of Willan, to which Hardy adds a form almost unknown in England, ecthyma gangrænosum. The *chronic* varieties are, ecthyma infantile and ecthyma cachecticum, the latter including the ecthyma luridum of Willan. In a tabular form they are as follows:—

ACUTE.	CHRONIC.
Ecthyma vulgare	Ecthyma infantile
“ gangrænosum	“ cachecticum

ECTHYMA VULGARE is the more common and simple form of the eruption,—that in which the pustules run the acute course already described, although the eruption may be prolonged by the successive appearance of pustules for two or three or more weeks, or by its continuance deserve to be considered as chronic. There is more tone and power of constitution in this than in the other forms, and the symptoms are milder in character. The pustules are for the most part developed on the extremities, particularly the lower limbs, the shoulders, and the neck, and more commonly in children than in adults.

ECTHYMA GANGRÆNOSUM is a name given by Hardy to an acute form of ecthyma, which he appears to have seen only once and in a man exhausted by age and misery. The eruption made its appearance in the shape of phlyzacious pustules, with a areola of a brownish-red colour at first, and afterwards grey. A circular eschar, succeeded by unhealthy ulceration, formed on the second day, and was followed in five or six days by death.

Hardy asks whether this may not be the *rupia escharotica* of authors? We think it not unlikely; for, substituting children for the aged, it corresponds very nearly with the pemphig gangrænosus of Dr. Whitley Stokes, the true representative of the older *rupia escharotica*.

ECTHYMA INFANTILE is more commonly chronic than acute; that is, its pustules are slower in their course; they are more commonly surrounded with a purplish or livid areola, and are more prone to fall into a state of unhealthy ulceration. They are met with in infants at the breast, and in ill-fed and ill-

nourished children. Bateman remarks that they not only make their appearance on the extremities and trunk, but also on the scalp, and even on the face, situations in which only ecthyma cachecticum ordinarily occurs.

ECTHYMA CACHECTICUM is the chronic ecthyma of the adult, as ecthyma infantile is of infants and children. Its milder characters bring it under the denomination of *ecthyma luridum* of Willan; while in a more advanced degree of cachexia it may present every shade of dark red, purple, and livid in colour, and every variety of ulceration, sloughing, and painful irritability. Although common to every age in the adult where the powers of the constitution are reduced, it is more frequently met with amongst the elderly. There can be no doubt that many syphilitic eruptions were treated as forms of ecthyma by Willan and Bateman, and that the prevailing cachexia noticed by them originated in syphilis. At present we are better informed as to the characters of constitutional syphilis, and less likely to fall into errors of this kind; and in proportion to our advance in knowledge in this respect, our examples of ecthyma have become reduced in number.

DIAGNOSIS.—The distinction of ecthyma is simple; its large well-formed pustules, scattered singly over the body, with hard and inflamed bases, are unlike everything else. The pustules of impetigo are only half pustules, sero-pustules, in fact; they are small, clustered, without hardness or much redness of base, and are commonly associated with other characters denoting eczema. The pustules of small-pox are phlyzacious, like ecthyma; but they are more numerous; they form part of a general eruption, and they are accompanied with special constitutional symptoms. The pustules of syphilis may also be phlyzacious, and only distinguishable from ecthyma by the other symptoms of that disease; indeed, a pustular syphiloderma may be an ecthyma developed under the influence of the syphilitic cachexia.

CAUSE.—The cause of ecthyma is debility, both constitutional and local; the constitutional debility in children and elderly persons being of the nutritive kind, and in adults sometimes assimilative and sometimes nervous. To this may be added local debility, or debility of tissue. In infants and young children, errors of diet, dentition, and errors of hygiene, take a prominent position as remote predisposing causes; and in adults and

elderly persons, all those causes which tend to exhaust the powers of the constitution. A child of two years of age has an attack of ecthyma with every tooth which she cuts; a lad of fifteen, of strumous habit, determined by nutritive debility, has been the subject of ecthyma of the legs for four years. All causes tending to occasion cacoehymia and cachexia are favourable to the production of ecthyma. Among the local causes may be enumerated irritants of all kinds: a common one in lymphatic and weakly children is the *acarus scabiei*; the pustule of scabies purulenta being an ecthymatous pustule. The pustules excited by the action of tartarized antimony on the skin are phlyzacious and ecthymatous; and Hardy calls our attention to an example of excito-sensory action manifested by the development of a crop of ecthymatous pustules on the back, at a point opposite another crop on the front of the chest, the latter being determined by the direct irritation of a blister.

PROGNOSIS.—Like other diseases manifesting a constitutional debility, a tendency to pyogenic transformation, to ulceration, and cachexia, ecthyma is grave without being serious or dangerous. It requires careful watching, and calls for the combination of all the resources of the medical art.

TREATMENT.—The treatment of ecthyma is constitutional and local. The constitutional treatment embraces a tonic regimen in the way of air, exercise, and diet; and tonic remedies, including bitters, mineral acids, bark, quinine, and steel.

The local remedies are such as will stimulate the skin moderately; for example, ablution with the juniper-tar soap tepid water night and morning, and dressing with the benzo-oxide of zinc ointment, with calamine cerate, or with the unguentum resinæ flavæ. In a cachectic habit, an ointment of friar-balsam or camphor will be found an useful stimulant; and where there be much irritability, a weak solution of nitrate of silver may be used to pencil the inflamed surface. In a sloughy state of the ulcers, the stimulating remedies are especially called for, and the surface may be dusted over with pulvis cinchonæ. Poultrices and sloppy remedies of all kinds are undesirable.

FURUNCULUS.

The general character of the furuncular eruption is an inflammation, extending deeply into the skin, forming more or less prominence on the surface, and resulting in the loss of vitality of a portion of the substance of the derma. The portion of the substance of the skin so destroyed is the heart of the boil, the core (*cœur*), and the suppuration which follows has for its object the separation and expulsion of the core. The degree of prominence of the boil would seem to depend on the depth of the portion of the skin attacked; when the latter is superficial, involving parts which are looser in texture and more susceptible of distension, the prominence is greatest: but when the inflammation sinks deeply, the prominence is less, although the mischief may be considerably greater, and the case in every way more serious, being attended both with a greater amount of pain, and being much slower in its progress. This, and the extent of the skin attacked, are the prime distinctions between the furunculus and the carbuncle: in furunculus there is but one core, and the core is less deep; in carbuncle there is more than one core, and these cores extend deeply into the derma. Thus, mere size is only a secondary feature in the diagnosis between furuncle and carbuncle; a large boil may be larger than a small carbuncle; although the carbuncle, being an aggregated boil, is generally much more extensive than the furunculus, sometimes reaching to a diameter of six or more inches.

The characters of distinction between furunculus and anthrax relate to their prominence, depth, breadth, colour, number of cores, and degree of pain. Furunculus is more prominent than anthrax; but the latter extends most deeply into the skin, and involves a greater breadth of the structure of the derma. The colour of furunculus is a deep red, becoming, as the disease advances, more or less dull and bluish; that of anthrax presents the same tints in a heightened degree, the deep red is still deeper and darker, often approaching a mahogany hue, and the bluish tint of furunculus becomes a deep purple and livid tint in anthrax. The core, which is single in furunculus, may be multiplied to twenty or thirty in anthrax, until the numerous openings formed on its surface for the exit of the cores give it the

appearance of a sieve or colander. Lastly, the pain, severe in furunculus, is more intense and more burning in anthrax.

Furunculus and anthrax, together with HORDEOLUM, or sty, which is a small boil occurring upon the edge of the eyelids, in connection with one of the meibomian glands, are grouped by Willan under the genus PHYMA; the latter term *φύμα* derived from *φάω*, *produco*, signifying a tuber, tubercle, or small swelling, and applied by Hippocrates and the older writers to a suppurating tumour; hence the designations phyma furunculus, phyma hordeolum, and phyma anthrax. Phyma is the first genus of the order Tubercula of Willan; Plenck makes it a genus of his class Bullæ, under the popular term "Eiterblasen," *pus-bladder*; while he places terminthus with the popular signification "erbsen Blattern," *pea-bladders*, among pustulæ.

The term furunculus is derived from *furere*, to rage, and is expressive of the severity of the pain that often accompanies the eruption; while the term anthrax, *ἀνθραξ*, *carbo*, in quo *ardet*, *est*, *floret ignis*, a burning coal, indicates a greater degree of severity, and an intense burning pain. To a boil which is more painful at night than during the day, the term EPINYCTIS (*ἐπινύκτις*, *ἐν νύκτι*, *ἐπινύκτις*, quoniam noctu oritur) has been applied. Anthrax presents two varieties not recognized at the present day, namely, pruna and terminthus. PRUNA, from its resemblance to a small plum, a term applied by Avicenna, is a buncle surmounted by a black eschar; while TERMINTHUS terebinthus, is a variety of carbuncle of which the core slough has been likened in shape and colour to the ripe cone of the pinus abies, or turpentine-tree.

Furunculus, or boil, is a small tumour, more or less prominent and conical, of a vivid or deep-red colour, hard to the touch, excessively tender and painful, slow in reaching maturity, suppurating imperfectly, and containing a central core of slough of mortified cutaneous tissue. After the ejection and separation of a greyish and pulpy slough, the sore heals slowly the affected skin remains for some time congested and discoloured, and a permanent cicatrix is left behind.

Boils may occur on any and all parts of the body; they rarely appear as a general eruption, but are successive in their invasion; and are usually more abundant upon some one region than upon the rest, although by no means confined to a single

region. Their common locality is the back of the neck, the shoulders, the armpits, the wrists and hands, the buttock, the perineum, the labia pudendi, the thighs, and the legs; and they are more commonly met with in the thick skin of the back of the trunk and outer side of the limbs than upon the front of the trunk and inside of the limbs. This remark does not, however, apply to the eruption when it attacks the armpits, the labia pudendi, the meatus auris, and the inside of the buttock, all common localities. Among other situations, we have seen boils on the eyelids, on the nose and ears, on the integument around the mouth, on the cheeks, and on the scalp.

The boil begins as a small red point in the skin, frequently painful from its origin, and tender to the touch: passing the finger over it, it is felt to be harder and deeper than a common papule, and the tissue around it is evidently condensed; it is gradually and slowly expanding itself in the skin, and threatening the mischief which never fails to follow. Slow and certain in its progress, the integument is gradually raised into a prominence of a more or less conical figure; the surface is at first red, then vividly red, then purplish red, sometimes a deep dull red, and sometimes purple, and even livid. After some days (four to six), a point is seen in the centre of the cone, showing that pus has commenced to form, or a blister is raised; the skin gives way, the pus escapes, the core or slough is brought into view, and, after a time, several (four to six), often many days, the slough is sufficiently loosened by the formation of pus between it and the sound tissue, to be thrown off; granulations are then formed on the surface of the cavity, the cavity contracts, the granulations shoot up and reach the surface, the cicatrization takes place; the process of reparation being extremely active (two to four days), when compared with that of the separation of the slough.

The process now described is attended with pain, intense pain,—*crede experto*; the tumour is excessively tender, “as sore as a bile,” and the pain is curiously increased at night, reminding us of one of the synonyms of the disease, namely, epinyctis. The great pain at night very probably results from the inactivity of the muscular system and the relaxation of the mind from its daily office, aided, no doubt, by the horizontal position of the body, the warmth of bed, the stillness of the time, and the

necessity for a state of calm and insensibility. The pain attendant on a single boil is prolonged for two, three, and sometimes four days; and when the eruption is successive, the pain of one is only obliterated by that of another, until the patient is worn out with suffering. Some persons are so happily constituted as to their nervous system, that they suffer but little, while others endure the most dreadful agony. Certain differences naturally result from the seat of the boil; a small boil in the meatus of the ear, pressing upon tissues incapable of resistance, from their inclosure by bone and confinement by strong ligamentous bands, almost crushing the numerous and sensitive nerves of that region, nerves which are in intimate communication with all the most important nervous trunks of the body, is painful to agony, to frenzy; while, by the same patient, a large boil in another situation, where, from the nature of the tissues, every facility of expansion exists, would be regarded as a mere inconvenience. A boil is painful in relation to the density or confinement of the tissues in which it occurs, and in relation to the neighbourhood of sensitive nerves. A boil in a part of the skin supplied by the trifacial nerve, and involving a filament of that nerve, is intensely painful; so is a boil in the skin of the nose, tied down to the cartilages by an unyielding fibrous tissue; or in the lip, where every beat of the coronary artery vibrates through the system; in the perineum, where the skin is also fixed by strong fibrous tissue; in the labium pudendi, where the part is apt to swell to almost bursting; in the armpit, where many filaments of nerves are distributed; or on the fingers, where the nerves are also abundant and sensitive.

In an attack of boils, it is not all that run the course described in a preceding paragraph; some stop at different periods of their progress, some do not survive the stage of pimples; others acquire a certain size, but neither suppurate nor slough: these are the so-called *blind boils*; they gradually and slowly subside; their contents, if any, are absorbed; they entitle themselves to the distinction of *indolent boils*; while a certain number only reach perfection. It sometimes happens that the local inflammation is not confined to the boil itself: it spreads to the surrounding tissue; the whole region is swollen and painful, and occasionally develops subcutaneous abscesses, and sometimes the absorbent vessels become inflamed, and the inflammation is

propagated to the lymphatic glands, producing swelling, and sometimes suppuration of those organs. Enlarged lymphatic glands in the groin, from boils on the buttock or pudendum, are not uncommon; and enlarged axillary glands, from boils on the hand or wrist, or in the armpit itself, are comparatively frequent.

Furunculus is commonly accompanied with constitutional symptoms of a very slight description; but sometimes, when the pain is very intense and prolonged, the feverish symptoms run sufficiently high to call for antiphlogistic treatment. The pulse may be quickened; there may be pain and tightness of the head; thirst, dryness of the tongue; languor and restlessness; and the secretions may be deficient in quantity or arrested; added to which, when the pain is excessive, or when the boil is developed in the meatus auris, there may be delirium.

HORDEOLUM.

HORDEOLUM, or sty, is a small boil occurring upon the edge of the eyelid, and involving a meibomian gland. In its progress it is indolent, coming slowly to maturity, and presenting at its summit a single purulent point, and sometimes two or three. It is attended with much pain, causes swelling, and sometimes oedema of the eyelids, and diminishes but slowly in size as it subsides, sometimes leaving behind it a chronic redness, which may last for several months. Commonly, hordeolum is single; sometimes two are met with on the same lid; sometimes one or more exist on both lids; and sometimes both eyes are affected at the same time.

ANTHRAX.

ANTHRAX, or carbuncle, is a hard, circumscribed, flattened tumour, very little raised above the level of the skin, but extending deeply (an inch or more) into the cutaneous tissue. It is red in colour, the redness being more or less vivid or dark at first, often presenting a mahogany tint; then becoming more or less purple, then livid; and after the separation of the sloughs and the healing of the skin, leaving behind it a chronic redness

and deep-brown stain, which lasts for a considerable time. The pain of carbuncle is very severe, and of the throbbing and burning kind; the latter character having gained for it its twofold appellation of carbuncle and anthrax; carbuncle signifying a little coal, and anthrax that same coal efflorescent with fire. When it has attained its full size, and the surface is purple or livid, the cuticle becomes raised into one or more blisters, numerous suppurating points appear in the skin, and these suppurating points are succeeded by perforations, through which the core issues from the stratum beneath in the form of sloughs, the sloughs being the fibrous tissue of the derma, converted into a greyish and whitish pulp, more or less soft and viscous, and mingled with an ichorous, purulent, and sanious discharge. Perforated all over its surface in this way, the face of the carbuncle has the appearance of a colander or sieve. Sometimes, instead of numerous perforations, a portion of the skin of considerable size loses its vitality, and becomes converted into a black eschar, and the slough which follows is homogeneous and extensive. This is the *pruna*, or eschar carbuncle. At other times, and also as a consequence of the loss of vitality of a considerable portion of the centre of the carbuncle, the brownish or reddish-brown slough, isolated by suppuration from the surrounding living parts, broader at its base than its summit, and foliated on the sides by successive extension of the sphacelus, has somewhat of the appearance of the ripened cone or fruit of a fir-tree. This idea in the poetical mind of our forefathers gave origin to the name *terminthus* applied to this variety of carbuncle; *terminthus* being a mode of writing *terebinthus*, and referring to the turpentine-tree, the *pinus abies*.

Carbuncle, unlike boil, is generally single, and attains a considerable size; sometimes, when small, there may be several dispersed on various parts of the body. Commonly, the carbuncle varies from two to six or eight inches in diameter, and one inch to one and a half in depth; it is hard and dense to the touch, and feels as though it were imbedded in the skin. It is usually met with on the back of the neck, close to the occiput, or upon the back of the trunk. We have seen it frequently on the shoulder, the side of the trunk, or the loins; and less frequently on the limbs.

A large carbuncle is at all times a dangerous complaint, on

account of the great pain which it occasions, the long continuance of that pain, the exhausting process requisite to separate the slough, and the irritative fever with which it is accompanied; added to all, is the fact of its very existence being due to enfeebled powers of constitution; but the danger of carbuncle is vastly increased by its occurrence on the nape of the neck, in which situation it is apt to excite erysipelas of a serious kind, and often to give rise to congestion of the brain, an event which is usually fatal.

Carbuncle is accompanied with more or less irritative fever and general disturbance of the nutritive, vascular, and nervous systems. It occasions loss of appetite and loss of sleep; and when the pain is severe, the patient is not unfrequently delirious.

DIAGNOSIS.—The distinguishing characters of the furuncular eruptions are, their hardness, redness, depth in the substance of the skin, pain, and, at a later period, the deeper tint of colour which they acquire, their perforation at the summit, the escape of so small and insignificant a quantity of pus, and the subsequent appearance of the core or slough. Hordeolum, moreover, is known by its seat of development. The special characters which distinguish furunculus and anthrax, at the first appearance of the latter, are the conical shape of furunculus, and the flatness of surface and greater depth of base of carbuncle; at a later period, bulk, number of cores, tendency to suppurate imperfectly in furunculus and slough in carbuncle, are superadded as further distinguishing features. The mutual relations and resemblances of the two diseases are further exhibited in the name which has been given to the smaller carbuncles, when only three or four cores exist, namely, furunculus anthracoides.

CAUSE.—In referring to the books of our fathers of a few years back, we might be led to infer that boils were a proof of exuberant health, that they were indicative only of the most exalted powers of constitution, and that the *plague of boils* was one of the most desirable events that could happen to youth and manhood. "The boil," says Mason Good, "is found in persons of an antonic or phlogotic habit, with a peculiar susceptibility of irritation;" therefore, he continues, this tumour is "chiefly found in persons of high health and in the vigour of youth." At the present day, however, this is certainly not the

fact, for we see boils associated with debility in every degree; we are, therefore, driven to the conclusion, that either the human constitution must have undergone a change since the time of our ancestors, or that altered atmospheric conditions have induced an alteration in the diseases of man. Probably both of these propositions are true; for, with regard to the first, we know that the free use of the lancet which was made by our predecessors could not be tolerated at the present time; and with regard to the latter, we are aware that diseases of dyscrasia have increased of late years, and go on increasing; and that the general tendency of disease is to assume a low and debilitated form.

During the last ten or twelve years, and particularly during the first half of this period, there existed, and still continues to exist in a less degree, an epidemic of boils; they afflict persons of both sexes, at all ages, and at all seasons of the year, but we have never seen them occur in any one possessing genuine good health; there is always mal-assimilation, often cachexia, and frequently the boils are associated with other forms of cutaneous disease, such as eczema or acne. In this so-called furunculæ epidemic the boils are for the most part small, and they have a frequent tendency to put on that form which is termed *furunculus anthracoides*, many of them having the character of small carbuncles rather than boils. They are also not unfrequently associated with the phyma or *push*, a small cutaneous phlegmon terminating in abscess; and sometimes large collections of pus are formed in the neighbourhood of the boils, as when they occur in the axilla or in the labium pudendi.

The anthrax or carbuncle is a disease of the latter half of life, and of a debilitated constitution, being always associated with cachexia, and frequently with the gouty diathesis. This disease always appeared to us to be the active cause of that monstrous carbuncle which is apt to form upon the back of the neck; and the cerebral congestion which frequently follows in its train is gouty congestion, allied to the gouty apoplexy which was common in the winter of 1855-56, as almost to appear in the light of an epidemic. John Hunter remarks that carbuncle is a disease of a full habit and good living, and almost exclusively confined to the richer classes, and that he never saw but one case in hospital. This was no doubt true at the time that he wrote; it may have been true also in reference to the selection

of cases for treatment in hospitals, but it is directly opposed to our own experience; we have repeatedly seen carbuncle in the parish workhouse, and, among the better class, in persons who were strictly abstemious and moderate in their habits, whose only excess was in mental pursuits, which indeed is a great source of deterioration and debility of the physical powers.

PROGNOSIS.—Furunculus, however abundant, is not dangerous; and with the restoration of the general powers is sure to get well. Anthrax is only dangerous when it occurs in a debilitated and exhausted constitution; and when it is developed on the occiput and back of the neck.

TREATMENT.—The family of the Furunculi are diseases of debility; sometimes of nutritive origin, sometimes nervous, but more frequently assimilative, associated with local debility. They therefore demand from us attention, both to the constitution and to the part; in other words, constitutional and local treatment.

The *constitutional* treatment must have for its object, to regulate the digestive organs and the secretions, to remove any special exciting causes that may be present, and to corroborate generally. To this end the remedies are, mild but efficient purgatives, followed by bitters and mineral acids, cinchona with sulphuric acid, quinine, and chalybeates.

Diet and regimen must necessarily constitute an important part of constitutional treatment. Meals should be regular and consist of wholesome materials; the diet generous without excess, and adapted to the habits and capabilities of digestion, and degree of exercise of the patient. In regimen, the sterling requirements are good and abundant air, daily ablutions of the skin of the whole body with cool water and soap, and a proper amount of exercise, avoiding exhaustion and fatigue. Nothing conduces so powerfully to the production of boils as neglect of these considerations. The stifling and impure atmosphere, confinement to the office or house, and an unwashed skin, are the special ingredients for the generation and growth of boils and carbuncles.

A popular remedy for boils is brewers' yeast; an ounce taken three times a day is said to cure the furuncular diathesis. We have never had occasion to give it a trial, as we have never found these eruptions resist the treatment above directed; and we cannot discover the principle of operation of the remedy. It

can supply neither air nor exercise, and as a tonic we should prefer the brew to the froth.

The *local* treatment of furuncles is of considerable importance; and we have to consider them in their three stages, of origin, maturation, and decline. In the *first* stage our efforts should aim at retarding them; in the *second* stage we must help the suppurating process, and relieve the pain caused by pressure on surrounding tissues; in the *third* stage we must help nature to cast off the dead matter, and heal the ulcers which they have occasioned. Our local treatment is consequently ectrotic, palliative, and healing.

The *ectrotic* treatment consists in the application of the liquor plumbi diacetatis, of the nitrate of silver in solution, or of the compound tincture of iodine. We prefer the first of these remedies, and apply it every six or twelve hours with a camel's-hair brush, leaving it to dry on the surface. The solution of nitrate of silver, of the strength of ten to twenty grains to the ounce of nitric ether, should also be applied by means of a camel's-hair brush, and repeated if no blister be formed, or if the furuncle seem disposed to subside; and the compound tincture of iodine may be used in a similar manner.

The *palliative* treatment supposes the failure of the ectrotic treatment to check the progress of the tumour. We must then soothe by warmth and moisture, and assist in the promotion of suppuration. To this end, the best remedy is a plaster of galbanum and opium spread on wash-leather and slashed in the middle, to permit the escape of pus when the boil bursts. If, in spite of this application, the pain continue or increase, we may be driven to have recourse to a very soothing but at the same time a very bad remedy—fomentation or a poultice. Fomentation is better than a poultice, because it may at any moment be suspended. The poultices the best suited for the purpose are those of linseed-meal, of carrots, or the yeast poultice; and we should recommend that, whichever be used, the skin should be protected with a dressing of lint spread with the unguentum resinæ flavæ, previously applied. When the poultice is used, it must be changed every six hours, so that the heat may be kept up to a pretty regular standard, and no check to suppuration allowed to intervene.

The objection to the poultice, to confined moisture and

warmth, is that it tends to soften and weaken the already debilitated skin, and to render it liable to the subsequent invasion of a crop of smaller boils or ecthymatous pustules. This we must obviate as much as possible, by limiting the extent of the poultice, by washing the circumference of the furuncle with tepid water and soap, and especially with the juniper-tar soap, whenever we remove the poultice; by sponging it with spirits of camphor, or the juniper-tar lotion, and by dressing it, as previously directed, with the unguentum resinæ flavæ.

The *healing* treatment is stimulant or tonic in its intention. The skin around the furuncle should be kept dry: it should be cleaned by means of the juniper tar soap, and anointed with the unguentum resinæ flavæ, while the broken summit should be dressed with a pledget of lint spread with the same ointment; the dressings being kept in position either by strips of adhesive plaster or by a light bandage.

When a boil or small carbuncle can be conducted to its cure without the aid of the lancet or of the knife, it will always be an event most satisfactory to the patient; but not unfrequently, and pretty constantly with anthrax, the necessity arises for the use of the blade; and therefore we must consider what the circumstances are which render the knife necessary, and, secondly, in what manner it should be used. The conditions urging the incision of furuncles are, extreme pain, inconvenient position, and great hardness and depth, implying a disposition to spread. The first and the last of these conditions represent the chief dangers of the disease. The pain injures the health, and a considerable increase in the extent and depth of the mischief increases the pain, and consequently the danger of the patient.

Pain is the consequence of the enlargement of the boil; and the enlargement is due to a double cause, namely, congestion of its blood-vessels and infiltration into its tissues. Now an incision made through the entire thickness of the boil or carbuncle empties the vessels and tissues, reduces the volume of the tumour, and immediately relieves tension and pain. Hence an incision is the very best remedy that can be applied, and at every stage of the tumour. It relieves swelling and pain, as we have already seen; it prevents the extension of gangrene in the tissues; it brings the disease to a more speedy conclusion, and it saves the general health and constitution.

As we have remarked above, in carbuncle, incision is indispensable; and then the question arises as to the number of incisions necessary. In our own practice we have always given a preference to a single incision, carried through the whole extent of the tumour, and in a direction the best suited to facilitate the escape of discharges from the wound. Other surgeons prefer a crucial incision, that is, two incisions in place of one, a calculated to give a greater degree of freedom to the discharges and a French surgeon, founding his theory on the known greater degree of sensitiveness of the skin than of other tissues, has recently proposed a subcutaneous crucial incision.

In the practice of incisions in cases of carbuncle, we may avail ourselves of chloroform, or of the numbness occasioned by congelation, as recommended by Dr. James Arnott.

Another method that has been advocated from time to time is the destruction of the central part of the carbuncle with *potassa fusa*. The advantages proposed by this method are that it is less painful than incision practised from the surface and without the use of anæsthetic agents; and that it saves a loss of blood which the patient is supposed to be ill able to bear. In certain chronic and irritable forms of furuncle, and especially those of the anthracoid character, we can affirm the value of the *potassa fusa*.

After the operation, in whatever way it be performed, the wound should be dressed with pledgets of lint spread with the unguentum resinæ flavæ, and covered with a linseed-meal or carrot or yeast poultice; and for reasons stated above, the sooner the poultices can be dispensed with the better.

The treatment of hordeolum should be the same as that of furunculus; cooling lotions to subdue heat and inflammation during the first stage; warm fomentations and poultices to encourage suppuration as soon as the first period is passed; stimulants, such as the unguentum hydrargyri nitratis dilute, to disperse any swelling or induration that may be left after the matter is evacuated, and restore the part to its normal state. Constitutional treatment should not be neglected, the principal of treatment being the same as that for boils.

CHAPTER VII.

NERVOUS AFFECTIONS.

NERVOUS AFFECTIONS of the skin are distinguished by alteration of its natural sensibility, such alteration having its seat in the nervous system, and especially in that portion of the nervous system which composes the nervous plexuses of the integument. The alteration may be one of *augmentation* of sensibility, as in the state termed hyperæsthesia; or *diminution* of sensibility, as in anæsthesia; or it may be one of *perversion* of sensibility, as in pruritus. In these altered states of sensibility of the skin, there may be no change in its appearance, as in pruritus; or it may assume a morbid condition of structure, as in the disease termed prurigo.

The diseases composing this group are four in number, as follows:—

Hyperæsthesia
Anæsthesia

Pruritus
Prurigo

HYPERÆSTHESIA, or augmented sensibility of skin, is sometimes idiopathic, and apparently independent of any other form of nervous disorder; and at other times is associated with a tendency to neuralgia, or with some other form of nervous affection, such as hysteria. Its symptoms are a state of sensitiveness raised to so high a pitch that the slightest pressure on the skin is painful; the patient is unable to bear his clothes; the vibrations of the house, even sounds, produce a painful sensation, and he is prevented from lying in a natural posture from intolerance of the pressure occasioned by the weight of his own body. We know a lady who for some weeks was incapable of lying in bed from tenderness of her skin, without any disease of the organ being present; and another in whom the scratching of a pen in writing seemed to trace its course in fire upon her head; while a gentleman of highly nervous temperament complained of certain sounds producing an acid feeling in his skin.

ANÆSTHESIA is a loss of sensation of the skin, more or less complete. The white discolorations of *morphæa alba* or *vittigo*, are anæsthetic; and so also, but in a less degree, are the bald patches of *alopecia areata*. Anæsthesia is known to accompany and distinguish one form of the true lepra, or elephantiasis, *lepra anæsthetica*. One of the first signs of this disorder that is noticed by the patient, is often a loss of sensation of the skin. A gentleman from Mauritius, who consulted me for this disease, told me that his attention was drawn to it first by accidentally pouring boiling water on his arm, and finding that it produced no sensation.

PRURITUS is a state of itching of the skin, without any cause being apparent in the organ itself: there is no redness, no alteration of surface, nothing, in fact, that the eye could detect as a disease. Pruritus is often associated with the eczematous diathesis, and may occur upon one part of the body, while indications of eczema are present on another; or it may occur in a person who at some other time has been the subject of eczema. Pruritus is also very commonly an excito-sensory phenomenon, or is sympathetic of some distant source of irritation, such as intestinal worms or hæmorrhoids.

The sympathetic excitation of pruritus indicates its nervous character, which is also manifested by the manner of its attack; coming on suddenly, raging with violent fierceness, sometimes periodic, and subsiding for a while totally.

Pruritus is occasionally *general*, but more frequently *local*. When general, it may attack by turn every part of the body; sometimes it is the consequence of neglect of proper attention to the skin, and at others is due to nervous irritation, originating probably in a state of disorder of the mucous membrane of the alimentary canal. In a case of the latter kind, the patient is apt to believe himself infested with insects, which he feels running about upon his skin from place to place.

In local pruritus the parts of the body in which the itching is most troublesome are its apertures, those in which the skin is continuous with the mucous membrane; for example, the eyelids, the nares, and especially the anus, the pudendum, and the prepuce. But pruritus also attacks other regions, such as the scalp and the scrotum. We know a young lady who, in consequence of the existence of pruritus of the edges of the eyelids,

pulled out all her eyelashes; another plucked the hair from the top of the forehead; and a lady of a certain age had the hairs of the head plucked out twice a week, the operation to her feelings being one of extreme enjoyment. Pruritus of the nostrils is a known concomitant of intestinal worms, and so also is pruritus ani.

The local forms of pruritus deserving of special attention are—

Pruritus ani
 “ scroti
 “ præputii

Pruritus urethræ
 “ pudendalis

PRURITUS ANI is often intensely severe and troublesome; indeed is sometimes almost unbearable, and creates a state of excitement of the whole nervous system. Children suffering from ascarides are often tormented with this itching. In adults the cause more commonly is hæmorrhoids and eczema. The sufferers tear the part with their nails, create a serous discharge, and then an eczema is developed. The point of greatest irritation is the line of union of the skin and mucous membrane.

PRURITUS SCROTI is especially eczematous in the character of its itching, but may sometimes exist independently. When the skin is much scratched and torn by the nails, it takes on the characters of eczema. It is often of considerable duration, lasting for some months, or returning from time to time for several years. A case at present under our treatment has continued for five years.

PRURITUS PRÆPUTII is also more frequently dependent on the eczematous diathesis than upon a special cause, although, from its position, it is very apt to sympathize with irritation of the genito-urinary apparatus. Hence itching of the prepuce and meatus urinarius is one of the symptoms of calculus of the bladder.

PRURITUS URETHRÆ is a troublesome irritation that belongs especially to females, and gives rise to great discomfort and annoyance. It appears to be sympathetic with irritation of the mucous membrane of the bladder and urethra.

PRURITUS PUDENDI is among the most annoying and vexatious of the disorders of the female sex; it may exist at all ages, but is most frequent at the mid-period and at the decline

of life. In children it is generally sympathetic with *ascarides*, or some irritation of the mucous membrane of the vulva. At a later period it may result from irritation accompanying the development of menstruation, and is sometimes associated with amenorrhœa. Again, it may be sympathetic with pregnancy or uterine irritation, or depend upon varicose veins of the vagina. It is variable in the extent of surface attacked, being sometimes limited to the mucous surface of the labia; sometimes involving besides the tuberculum urethræ and the margin of the vagina; and sometimes extending for an inch or more into the canal of the vagina. When it attacks the cutaneous surface of the labia, it is generally due to eczema. It is a disorder usually of long duration, lasting for months, and sometimes for years.

DIAGNOSIS.—The pathognomonic characters of pruritus are itching without apparent alteration of structure of the skin.

CAUSE.—The cause of pruritus is a reflex nervous action, excited by irritation, commonly of some part of the mucous membrane; for example, the alimentary mucous membrane, and especially the uterine mucous membrane. In a case lately under our care there existed considerable derangement of stomach, accompanied with gastrodynia, and frequent attacks of vomiting. Pruritus also accompanies pregnancy and *ascarides*. The predisposing cause is debility, which may be assimilative, nervous, or local; and the more common of the remote predisposing causes are, deranged digestion, rheumatic and gouty diathesis, abuse of alcoholic drinks, &c. A sordid and ill-nourished state of the skin is not unfrequent as a local cause.

PROGNOSIS.—Pruritus is nowise dangerous, but is frequently very obstinate; and as a daily annoyance is often more unbearable to the patient than a more serious complaint. In nine cases, the duration of the disorder ranged from one month to six months in five, and from one year to five years in the remaining four.

TREATMENT.—The treatment of pruritus must be directed to the constitutional cause, and especially to the exciting cause. Where the latter is obvious, our treatment is self-evident; where it is obscure, we must endeavour to improve assimilation and strengthen the health generally. In obstinate cases, we shall

find arsenic of great value as a neuro-tonic, an assimilative tonic, and a special cutaneous tonic.

The *local* treatment must have for its object the restoration of the tone and healthy function of the skin, and the employment of anti-pruritic remedies. With the former view, we shall find cold ablutions with the juniper-tar soap of much service; the exposure of the skin to the atmosphere; the use of light articles of clothing. A gentle sweat in the Turkish bath at a moderate temperature (130°), followed by shampooing and a tepid or cold douche, will do much to restore the tone and vigour of the skin. When the seat of pruritus is limited and more under our command, we must have recourse to thorough washings with the juniper-tar soap and cold water preparatory to the application of other remedies.

Our best antipruritic remedies are the pyroligneous oil of juniper, in its pure state in severe cases, and more or less diluted in milder ones. Hydrocyanic acid in emulsion of bitter almonds; the bichloride of mercury in emulsion of bitter almonds; lotions of the sesquicarbonate of ammonia, or of the superacetate of lead, &c. These remedies may be sponged on the irritable parts several times in the day.

In pruritus capitis, a pomade containing one part of the nitric oxide of mercury ointment to three of lard is a good application; in pruritus palpebrarum, a diluted ointment of the nitrate of mercury is the best that can be applied; while in pruritus scroti, pudendi, and ani, the ointment of the pyroligneous oil of juniper is the best. It is necessary, however, to have a variety of remedies of this kind, in order to change them from time to time, or substitute one for the other, in case the first prescribed does not answer the purpose. In very obstinate cases we may employ a lotion or ointment of cyanide of potassium.

PRURIGO.

PRURIGO is an affection of a more deeply seated position, and more inveterate character than pruritus, and is usually confined to the aged, but may exist at any period of life. It is not only a state of aggravated pruritus, but it also involves an alteration of the structure of the skin, which is hard, uneven, discoloured, and unhealthy, both in appearance and function.

The itching of prurigo is a combination of all the vexatious modifications of pruritus; consisting of itching, tingling, creeping, tickling, pricking, burning, piercing, &c. The act of rubbing or scratching seems to spread and aggravate these sensations, until they become unbearable, and create an excitement throughout the whole nervous system, rising sometimes to a state of frenzy. These morbid sensations occur on all parts of the skin, but seem to be concentrated for the time in the part where the symptoms are present. They are intermittent, ceasing entirely for a while, and then returning with unabated force; and are influenced to a very considerable extent by changes of temperature and by mental emotion. Thus they are brought on by the chill which accompanies the removal of the clothing; by the warmth of bed; and especially by the direction of the thought to the evil.

These sensations are associated with an unhealthy appearance of the skin, which is greyish and yellowish in colour; dry, often resembling parchment rather than living skin; sordid, condensed: uneven; and roughened by pimples, resulting from the elevation of the pores. Moreover, to these signs of the disease, we must add emaciation of the person and general wrinkling of the skin. The itching gives rise to a state of spasms periphericus to a greater or less degree; and its unevenness and papular condition are thereby increased.

For the relief of the itching, scratching with the nails is irresistible; and then a new series of signs are added to the above: the heads of the papules, caused by the erection of the pores, are torn off and bleed, and when they cease to bleed, are surmounted with little black scabs of desiccated blood; and the nails leave their traces on the skin in the shape of long excoriated lines, which present various degrees of freshness; some being recently made and red, others partially crusted, and others again brown and fading; and not uncommonly with all these pathological appearances, there is also a sprinkling of the wheals of urticaria, resulting from the spasms periphericus previously indicated.

To sum up the signs of prurigo, we must therefore note: pruritus of a severe kind and intermittent; a yellowish-grey colour; small black scabs, intermingled with the red and brown lines produced by scratching; and a generally unhealthy appearance

of the skin, which is dry, uneven, sometimes roughened by indistinct pimples, hard, and resembling the surface of leather. Where the skin has been neglected, we may add to these signs a sordid condition, consisting of sebaceous concretions on the surface, partial desquamation, and impaction of the sebaceous ducts with epithelial exuviae and sebaceous matter.

Willan makes of prurigo one of the members of the order *Papulæ*; but it will be seen that the presence of pimples is an accidental character: there is nothing that deserves the appellation *papule* until the pruritus begins; and often, until the nails have been energetically applied; whereas the painful state of the cutaneous nervous plexuses is in reality the primary and most important sign, and the very essence of the disease.

The VARIETIES of prurigo are two in number, namely,—

Prurigo vulgaris

Prurigo senilis

We have formerly admitted, with Willan, prurigo mitis, prurigo formicans, and several local forms; but with our present views, we should refer prurigo mitis to lichen, under the name of lichen pruriginosus; prurigo formicans to prurigo senilis; for the modification of sensation implied by the word "formicans" is clearly not such as to entitle it to separate consideration; and the local forms to pruritus.

PRURIGO VULGARIS embraces the mildest form of the series of symptoms described under our general head. This modification is less the result of any difference in the nature of the disease, than in the circumstance of its occurrence in the young or in the adult, and in persons who are not so exhausted as in the latter periods of life.

PRURIGO SENILIS involves the most severe of the series of symptoms already detailed. It is a disease of the aged, and originates in the cacochymia common to that period of life; the symptoms being exaggerated in proportion to the nervous irritability of the patient. It is no dependence of dirt or neglect, but occurs often in the most cleanly, and in every rank of life. The painful sensations accompanying this disease have been sometimes compared to the gnawing of ants; hence one of the names applied to the disease, namely, prurigo formicans; but it is clear that this distinction is more applicable to the imagination of the

patient than it is to the disease itself. An abbé suffering from this complaint, finds his illustration in martyrdom, in the "gril de St. Laurent;" while a soldier compares his pains to being pierced all over with halberds.

DIAGNOSIS.—The diagnosis of prurigo is a severe itching of the skin, associated with altered structure and appearance; the presence of small black scabs, and the traces left by scratching. In the absence of signs of altered structure of the skin, the case is one of pruritus. When there is itching, with papulæ, and the absence of alteration of structure just referred to, the disease is lichen pruriginosus; and when there is erythema, desquamation, and exudation, the diagnosis is eczema. It may be remarked, however, that we have sometimes seen prurigo combined with eczema.

CAUSE.—The cause of prurigo is debility, commonly, nervous debility; and the lowered tone of the peripheral nervous system excuses permits of that degradation of nutrition and innervation in the skin which occurs in this painful disorder.

PROGNOSIS.—Prurigo is always stubborn, and generally grave when it occurs in elderly persons, on account of the severity of the suffering with which it is associated, and the exhaustion accompanying that state.

TREATMENT.—Our treatment must be constitutional as well as local. Our constitutional treatment should have for its object, to improve the tone of the system and increase the assimilative power; while the local treatment must be addressed to the alleviation of the local irritation and distress. The remedies recommended for pruritus are suitable to both of these purposes; and to these we must add a generous and wholesome diet. Arsenic properly administered and watched, may be regarded as a specific in prurigo. And we may accomplish much towards the restoration of a healthy condition of skin by ablutions with the juniper-tar soap, frictions and manipulations with the hand after the manner of the shampooer, and moderately stimulating applications.

CHAPTER VIII.

VASCULAR AFFECTIONS.

THE VASCULAR AFFECTIONS of the skin form a small group, of which the characteristic feature is enlargement or hypertrophy of the blood-vessels. Sometimes the enlargement is on the side of the arteries, as in *nævus araneus*; sometimes on that of the veins, constituting *hypertrophia venarum*; while enlargement of the intermediate vessels or capillaries gives rise to the various forms of *nævus vasculosus*, which sometimes assume the arterial, and sometimes the venous tint of colour, and acquire the designation of *nævus vasculosus arteriosus*, and *nævus vasculosus venosus*.

In a tabular form, the *varieties* of *nævus vasculosus* may be stated as follows:—

<i>Nævus vasculosus arteriosus</i>	
" "	<i>venosus</i>
<i>Nævus araneus</i>	
<i>Hypertrophia venarum</i>	

NÆVUS VASCULOSUS ARTERIOSUS, the vascular mother's-mark, presents a bright arterial colour, and is sometimes raised above the level of the skin, and sometimes almost flat. It is composed of a plexus of minute blood-vessels or capillaries in a state of hypertrophy, covered by a very thin layer of corium, and has a spongy texture in the interior. It differs in bulk in proportion to the distension of its vessels with blood; in a passive state being corrugated and more or less flaccid, and in an active state smooth and distended, almost to bursting. This quality of the *nævus*, of swelling under the influence of a more active state of the circulation, has gained for it the name of *erectile tumour*, and in the same language, it is said to be composed of erectile tissue.

The vascular *nævus* offers some differences of figure and extent. The flat *nævus* is irregular in outline, uneven on the surface, and sometimes of considerable breadth. The elevated *nævus* is round or oval in shape, of less considerable extent,

and more or less smooth superficially. The variety of shape of these tumours, their colour, and their prominence, associated with the fact of their being congenital, have suggested a number of fables with regard to their origin, founded for the most part on the imagination. It is believed by the people that they result from the mental influence of the mother operating upon the foetus during pregnancy; that sometimes they proceed from unnatural longings, and at other times from violent mental emotion or fright. Hence the popular designation, *mothers' mark*; and hence also the objects which they are supposed to represent. These objects must, of course, be red in colour, to correspond with that of the nævus; for example, fruit, such as currants, cherries, raspberries, strawberries, the boiled lobster, and blood. In the case of an infant afflicted with a nævus of this description lately brought under our notice, the mother said that at about the fourth month of her pregnancy she had an intense longing for some raspberries that she saw growing in a gentleman's garden, and that she was unable to divest her mind of this impression during the whole of the subsequent period, and that she was haunted with the dread lest her child should be marked. It is needless to say that the longing had no share in the production of the nævus; but the coincidence of these longings and defects of structure of the child is sometimes very curious. The arterial vascular nævus very frequently disappears gradually in course of time, especially when the disorganization is not very deep or extensive; at other times it enlarges and spreads, and is apt to give rise to considerable deformity of appearance, particularly when it has its seat upon the face. The situations in which it most frequently occurs are the head and face, the shoulders, and the front of the trunk of the body.

NÆVUS VASCULOSUS VENOSUS.—The venous form of vascular nævus is distinguished from the arterial nævus by its purple or livid colour. This difference of colour is due to a slower and more languid circulation through the nævus, which gives time to the blood to undergo its venous transformation; and under the influence of an exciting cause capable of increasing the rapidity of the circulation, the blood becomes redder, and assumes a less purple character.

The venous vascular nævus, like the arterial nævus, may be either flat or prominent, and present similar characters. The

popular fancy sees in this form of nævus fruits of a deep purple or black colour, such as blackberries and black currants, or the hue of the unboiled lobster; and the longing of the mother is supposed to have taken that direction.

When the nævus is superficial and but little raised, it is sometimes termed a *claret stain*, and may spread over a considerable extent of surface, as the whole of one side of the face. These nævi sometimes occupy the eyelids, the ears, and the lips, and in these situations are apt to swell to a very considerable size, and produce very great deformity.

NÆVUS ARANEUS is not a congenital form, but may appear at any period of life, being most common in children and women, and persons possessing a delicate and weak skin. It consists of a small globular prominence, from which several radiating vascular lines pass off around, like rays from a centre. The globular prominence is an aneurismal loop of a minute artery, and the radiating lines are the veins which carry the blood away. At a short distance from the central umbo they sink into the skin and are lost in its deeper circulation. The peculiar shape of the nævus, a red centre with radiating lines that might be compared to the legs of a spider, has suggested the name by which it is known, namely, *spider nævus*.

There is, however, another form of nævus araneus in which the venules communicate with each other at a short distance from the central boss, by means of a network of anastomoses, and give a different character to the appearance of the nævus; this we have distinguished as the *nævus araneus reticulatus*; in other respects it corresponds exactly with the ordinary nævus araneus.

The nævus araneus is most commonly met with on the cheeks, near the eyelids, and sometimes on the eyelids themselves. It is also seen on other parts of the face, and occasionally on the neck and chest; less frequently it is found upon other parts of the body where the skin is firmer and tougher.

HYPERTROPHIA VENARUM is a term applicable to enlargement of the minute veins of the skin; vessels that in a normal condition of the organ are imperceptible to the eye. Their enlargement is principally due to weakness of tissue, but in a measure also to causes which give rise to obstruction in the current of the venous circulation. They are met with chiefly on

the face and on the lower extremities, but occasionally on other parts of the body, and are unaccompanied by any pain or inconvenience beyond the deformity of appearance which they necessarily occasion.

On the face they are seen principally on the nose, the cheeks, and the chin; on the nose they are most conspicuous on the sides of the alæ and at the tip of the organ. In these situations the venules sometimes attain a considerable size; they are formed by the confluence of smaller venules derived from a plexus which occupies the fleshy border around the apertures of the nares, and proceed upwards in parallel lines to the upper border of the alar cartilage, where they dip into the substance of the nose and join the veins of the Schneiderian membrane. On the sides of the bridge of the nose, and on the cheeks, they form a coarse plexus, and on the lower limbs, particularly the thighs, they constitute a superficial plexus of small extent, which is bluish in colour, nodulated and uneven on the surface, and gives a feeling of hollowness and sponginess to the touch. In the latter situation they empty their blood into the subcutaneous veins, which are also more or less varicose.

This state of hypertrophy of the venules, when it occurs upon the face, is accompanied with more or less hypertrophy of the cutaneous tissues; the skin has a coarse appearance, is thickened to a certain extent, and in an advanced state of varicosity becomes generally enlarged, purple, and even livid. These phenomena occurring in the nose produce swelling and enlargement of that organ; infiltration into the subcutaneous tissue takes place, and a foundation is laid for those huge lobulated noses which are occasionally met with in society.

Hypertrophia venarum occurs only at the adult period of life, and amongst elderly persons, and commonly results from a lowered tone of health. On the face and nose it is sometimes due to sedentary habits, or to exposure to inclemency of weather or climate; and on the lower extremities is referrible to retardation of the circulation caused by a varicose state of the receiving venous trunks.

DIAGNOSIS.—A prominence formed by blood-vessels in the substance of the skin is so easily distinguishable as to call for no special remark. The flat varieties of vascular nævus, with smooth and unbroken cuticle, are not likely to be mistaken

either for erythema or eczema, and the papulated and compressible elevations of nævus araneus and smaller vascular nævi are wholly dissimilar to the solid papulæ of lichen or strophulus.

CAUSE.—The cause of nævi is essentially a weakness of tissue, combined with abnormal nutrition; in the instance of congenital nævi it is an abnormal growth centred in a part instead of distributed through the entire organ. The minute aneurism constituting nævus araneus is commonly the result of muscular efforts which subject the vessels of the skin to a sudden distension; such as coughing, sneezing, struggling; the forced muscular throes of labour, or inordinate efforts of any kind. Hypertrophia venarum is commonly slow in its development, and results from exhaustion of tone of the vessels by frequent and excessive distension.

PROGNOSIS.—Unless in very extreme cases, either of excessive depth or breadth, nævus and hypertrophia venarum are removable by surgical means. They are very rarely of a fatal character.

TREATMENT.—The treatment of nævus is almost entirely local. If there be evidence of a weak and relaxed state of tissue, a constitutional treatment may be had recourse to, with the view of strengthening the part through the whole; and in hypertrophia venarum there may arise good reason for this practice.

The *local* treatment consists in the application of surgical means, which have for their object either the obliteration of the nævus, or its ablation, either by ligature or by the knife.

We have said that congenital vascular nævi often get well spontaneously; the undue supply of blood requisite for their maintenance is apt to diminish, their vessels contract, gradual obliteration follows, and nothing but the cicatrix remains. A cicatrix is inevitable, because the skin has become disorganized; its vessels have been developed at the expense of the other tissues, and the other structures of the skin have been spoiled beyond the means of restoration. Relying upon this process, there is no occasion for an early application of treatment, and especially so when the nævus exhibits no tendency to enlarge.

The practice of obliteration is an imitation of nature's process of cure: we effect it by compression; but the compression must be constant, so as to empty the vessels completely, and prevent

the return into them of the blood; we thus put them into a state the most favourable to insure the contraction of their walls; and if this contraction be preserved for a while, it will continue permanently. There is a probability also of the deposition of plastic lymph in the arææ of the vessels, and its subsequent organization; in which case, complete obliteration is attained.

We further aim by our treatment to produce this effusion of plastic lymph; and to this end we add the use of stimulants to simple compression. The simplest form of stimulant is a styptic solution; such as the liquor plumbi diacetatis, or a solution of alum, applied by means of compress and steadily retained in its place; indeed, speedy cure, or cure at all, may be said to depend wholly upon our power of keeping up a steady and constant pressure. The above plan is that of Dieffenbach; and a severer method founded on the same principle is recommended by Behrend; namely, the application of strong acetic acid, followed by compresses wetted with vinegar: this process is apt to produce ulceration of the skin. From the known corrugating and styptic properties of creasote when applied locally, this also might be found to be an useful remedy. When there exists no objection to setting up an ulcerative action, which to us appears wholly unnecessary, we may have recourse to nitric acid, or *potassa fusa*.

The plan of treatment considered above applies chiefly to the flat forms of nævus, and is not so suitable in general to the more prominent forms. Nevertheless, the principle of treatment must be the same in both, the actual treatment differing only in its manner of application. Thus it has been proposed to induce the deposit of plastic lymph in the nævus by exciting in it the inflammation of the vaccine virus; in other words, by vaccinating the tumour. Again, it has been suggested that a seton should be passed through it, or that it should be injected with some astringent solution. Actual cautery also has had its advocates. An elegant and very promising method was recommended by Marshall Hall, namely, puncturing the tumour with a cataract needle, breaking down its tissue, and then applying a compress.

When a more speedy cure is sought for, we may have recourse to ligature, the ligature passing beneath one or two needles with which the base is transfixed. To obviate the loss of integument with which this process is accompanied, Liston proposed to make

a crucial incision across the tumour, to reflect the flaps, and then to introduce a ligature through the base of the tumour. Smaller tumours have been taken out at once by simple incision; but loss of blood is always to be guarded against, and therefore the ligature is usually preferred to the knife.

Nævus araneus is best treated by a little operation of our own, namely, touching with a sharp point of potassa fusa; and the enlarged venules of hypertrophia venarum we treat in a similar way. Our plan is to break a small piece of potassa fusa into fragments, to select a fragment with a sharp angular point, and with the aid of a small pair of forceps, to use the angular fragment as a needle. We scratch the summit of the boss in nævus araneus with this sharp point and press it into the cavity; we hold it there for an instant, and upon withdrawing it, the drop of blood in the vessel is coagulated and charred. If there be hæmorrhage, we press the spot until the bleeding ceases, and repeat the operation. When the blood contained in theumbo of the nævus is charred, the charring commonly extends to the radiating vessels; but if these remain pervious, the caustic is to be drawn briskly along their course, so as to char the blood which they contain. The venules of hypertrophia venarum we treat in a similar manner to the radiating vessels of the nævus araneus.

CHAPTER IX.

HÆMODYSCRASIC AFFECTIONS.

HÆMODYSCRASIA, derived from *αἷμα*, blood, and *δυσκρασία*, bad constitution, signifies an alteration in the blood, which results in the deprivation of its healthy qualities. The blood is more watery than natural; its coagulable part is deficient in quantity and density; its fibrinous elements and plastic properties are below the average; and in extreme cases the blood-corpuscles have a tendency to break up and decompose, and permit the solution of their colouring principle in the serum. In other words, the blood is weak, poor, thin, and unequal to the proper nutrition of the body and the maintenance in health of the tissues.

This state of the blood is associated with, and is a part of a general cacoehymia and cachexia, which lowers the vitality of the body, and subjects it to the invasion of a series of morbid phenomena representing every degree of debility, from a state not wide in its departure from health to a state more nearly approaching the changes which take place after death. The morbid change in which we are the most interested at present is the altered relation of the blood-vessels and of the blood, of the containing and of the contained part. On the one hand, the vessels are weakened and relaxed, and lose their power of retention; while, on the other, the blood is more thin and watery than natural, and more prone to escape through their porous walls. There results from this combination of morbid conditions an escape of blood from the capillary vessels of the skin, in the form of spots more or less profusely dispersed over the surface. The spots are purple in colour, and the affection so engendered is termed Purpura.

PURPURA.

PURPURA, therefore, is a morbid affection of the skin, denoted by the presence of purple spots dispersed over its surface, and having their seat in the papillary layer of the corium. The

spots may be developed on every part of the skin, but are most abundant on the limbs, and particularly the lower extremities, and are successive in their appearance, fresh spots becoming visible every day until the body is more or less completely covered. The spots are at first of a bright purple hue; they gradually become darker, livid, or almost black; at a later period they lose their brightness and their sanguineous colour, and as they fade, assume the varied tints of a declining bruise, namely, brown, green, and yellow, until they are entirely lost. As the seat of these changes is the surface layer of the corium, the cuticle escapes alteration, and there is no desquamation.

Such is the history of simple purpura, *purpura simplex*; it is unaccompanied by specific symptoms; the symptoms with which it is joined being those of cachexia in general, sometimes aggravated by the feverishness common to cachexia; namely, hectic fever. In consideration of this simple course, purpura has received a variety of names, all of them being illustrative of the same idea of mildness of character of the disease; for example, *purpura apyreta*, *purpura sine febre*, *purpura chronica*, &c.

But purpura from its very nature, namely, involving a tendency of the blood to escape from its vessels, and a degraded condition of the blood itself, may be much more serious than is here described; the blood may be effused in larger quantity; the effusion may not be limited to the skin, but may extend to the mucous membrane of the alimentary canal; of the air-tubes, of the uterine organs, of the urinary apparatus; or it may take place into the serous cavities, as of the arachnoid, and even into the parenchyma of the different organs of the body. We may thus have a series of aggravations that must convert a very simple affection into one of a serious kind; a mild and comparatively unimportant disease into one of a grave and fatal character. The phenomena above described belong to the variety of purpura termed *purpura hæmorrhagica*.

Simple purpura has also been called *purpura spontanea*, in order to mark the distinction of a purpura which is commonly associated with continued fever; namely, with typhoid, typhus, and the relapsing fever. We have already noticed these fever-spots under the head of *Roseola*, to which they appear to belong, rather than to true purpura; the first effort of nature being the production of a roseolous eruption, the dyscrasia of the tissues

determining instead, an exosmosis of the blood, and, consequently, a purpura. It is also to be remembered that a mitigated form of purpura is a common sequence of roseola; the purple and yellowish bruise-like stains being of a purpureous or porphyritic nature.

The relation of purpura to the healthy condition of the body is illustrated in a peculiarly interesting manner by the purpura of sailors—*purpura nautica*—who have been for a long time restricted to a deficient and unwholesome diet. *Sea scurvy* is a purpura hæmorrhagica, and in pursuance of the same idea, purpura simplex has been termed, in popular language, *land scurvy*. Sea scurvy is not, however, confined to the sea; but as it depends upon want of food and proper ventilation, may exist equally on land, when those conditions prevail. Hence it is a frequent accompaniment of the famines which sometimes overtake populations.

The skin of elderly persons, particularly those in the lower ranks of life, is subject to an effusion of its blood into the superficial portion of the corium, and giving rise to purple and livid spots of various size. These appearances are commonly observed in the forearms, and have received the name of *purpura senilis*. This, however, must be regarded simply as a courtesy title, and the best we can say of them is, that they are spots resembling those of purpura, but independent of the symptoms accompanying that disease. They are, in fact, more interesting to the pathologist than they are to the practitioner, as they indicate not a disease but a state which resembles disease, and which forms a link of some value in the comparative pathology of this curious complaint.

We retain also among the varieties of purpura a *purpura urticans*, and we regard it as a purpura complicated with the spasmus periphericus and pruritus of urticaria. It might sometimes be a question which of the two diseases was in the ascendant, the purpura or the urticaria; but it is evident which is the most conspicuous and permanent: namely, the former; and it is not an uncommon phenomenon, and one of more importance than is at first apparent, to find a substantive disease sometimes performing the secondary part of a symptom. Thus, in purpura urticans, purpura is chief, while urticaria plays a subaltern or secondary part. We have already adverted to the relation of

roseola and purpura in continued fever, and we remind the student also of the association of purpura with lichen, in the variety of the latter termed *lichen lividus*, and we have seen it conjoined with eczema. We must also call attention to the association of purpura and pemphigus, or, for the gratification of the lovers of complicated nomenclature, we might say, *purpurex pemphigoides*.

That purpura and pemphigus should be united is by no means remarkable; it is an occurrence that we might predicate beforehand; and it possesses interest as a pathological fact. Both diseases taken separately are diseases of cachexia, of dyscrasia, and their union in the same individual suffering under that state, is no more than we might *a priori* expect. Purpura is a dyscrasia in which the colouring principle of the blood filters through the capillary vessels, probably in solution in its serous or liquid part. Pemphigus is a disease in which the serum of the blood exudes through the capillaries of the skin, and raises the cuticle in bladders of various size. If in the case before us there were no purpureous spots, we should call it pemphigus; but in the presence of those spots we are apt to regard, and on reasonable grounds, purpura as the major disease. Purpura, like pemphigus, may accompany any form of cachexia, whatever its source, or any disease which determines a cachectic habit; thus, it might occur in the syphilitic cachexia, and only does not do so more frequently than we see it at present because it demands for its development besides the cachexia resulting from the presence of poison in the blood, the more exhausting cachexia that results from bad and insufficient food. Pemphigoid purpura is not especially a disorder of the lymphatic diathesis, but is generally accompanied with a tendency to œdema of the subcutaneous cellular tissue.

The milder forms of purpura may exist with little or no constitutional disturbance; but the severer forms are accompanied with symptoms of prostration and exhaustion. Purpura is also not unfrequently associated with diseases of a neuralgic character, and particularly with rheumatism. The local symptoms of the disease are, a mild degree of prickling and tingling, with tenderness and soreness to the touch. These symptoms in general attract very little attention; but the prickling and tingling are raised to an inordinate and painful degree in purpura urticans.

The spots of purpura have received several names, in accordance with their figure and dimensions. The smallest kind of spot, which is a mere speck or dot, is termed *stigma*; next in size to the stigmata is the *petechia*, a round spot resembling a flea-bite, from which the term is derived. The petechia, however, is wanting in the deep red centre which indicates the point of perforation of the haustellum of the insect; although, as it is formed around the aperture of a pore, a central indentation may be frequently observed. Of a larger size than the preceding, and frequently the product of the union of several petechiæ, are the *vibices*. They are irregular in figure and of various size. Lastly, there may be blotches of larger dimensions than the vibices, and which owe their origin to a palpable extravasation of the blood in more considerable quantity; these are termed *ecchymoses*, or *ecchymomata*. They may present every variety of figure, and at their decline have the appearance of a considerable bruise.

Willan includes purpura in his order Exanthemata, and associates it with rubeola, scarlatina, urticaria, roseola, and erythema. Its total separation in character and nature from these diseases, must be sufficiently obvious; and its occasional association with urticaria and roseola, as an urticaria porphyretica, and roseola porphyretica, affords no grounds for this classification.

The VARIETIES of purpura may be stated as follows:

Purpura simplex
" hæmorrhagica

Purpura urticans
" senilis

PURPURA SIMPLEX is represented by the mildest series of the symptoms enumerated above: there are no ecchymoses, and the stigmata, the petechiæ, and the vibices, are distributed more or less partially over the body, chiefly upon the lower extremities; but also on other parts, as the arms, and the front of the abdomen and chest. The eruption of the spots is successive; they are preceded and accompanied by a little prickling and tingling, and by a feeling of soreness and tenderness of the skin, while the constitutional symptoms are such as to indicate general debility and cachexia; for example, languor and lassitude, depression of spirits, loss of appetite, and interruption of the functions of digestion and secretion.

PURPURA HÆMORRHAGICA is recognized by an aggravated development of the general symptoms of purpura; the spots begin in the lower extremities, and gradually creep upwards until they invade every part of the body, with the exception of the hands and face. The spots are of all the kinds above enumerated,—stigmata, petechiæ, vibices, and ecchymoses. The most moderate pressure produces a purple mark or ecchymosis, and the ridges of the folds or wrinkles of the skin are traced in purple or livid lines. Moreover, there are mingled with the spots, not unfrequently, vesicles or bullæ containing blood, and there is a tendency to œdema of the subcutaneous tissues.

The spots are not limited to the skin, but are seen also on the mucous membrane of the mouth and fauces, and on the conjunctiva. The gums are spongy and bleeding, and the presence of a similar condition of the mucous membrane in hidden parts of the economy is recognized by hæmorrhagic discharges from the nose, lungs, bowels, uterine cavities, and sometimes from the bladder and kidneys; and after death, spots of ecchymosis are found in the greater number of the organs of the body, beneath the serous membranes, and between the coats of the arteries and veins.

The constitutional symptoms of purpura hæmorrhagica are a repetition of those of purpura simplex, but in a more severe degree: there is more languor, lassitude, prostration, and muscular debility. The pulse is feeble and quick; there is depression of the moral powers, and fever of the hectic kind. The frequent recurrence of internal hæmorrhages increases the debility and hectic feverishness; there is great faintness; the limbs become œdematous; and the patient sinks from exhaustion, sometimes dying suddenly during the continuance of an hæmorrhage, or from the effusion taking place in a vital part.

It is this disease which at one time was so common in our navy, and was described under the name of scorbutus (purpura nautica), and which is found to prevail from time to time among masses of people congregated in unhealthy localities, and subjected to vicissitudes of temperature, particularly a cold and damp atmosphere, with bad and insufficient food, imperfect ventilation, exhausting fatigue or deficient exercise, or a too prolonged use of salt provisions, and which is so effectually remedied and prevented by the reverse of these conditions, namely,

a dry atmosphere, good ventilation, good, fresh, and sufficient food, and proper exercise and cleanliness. The general symptoms of sea scurvy are exactly similar to those described under the head of land scurvy and purpura hæmorrhagica, but often assume an exaggerated character. There is more physical prostration, the skin is pale and discoloured, the vibices are larger, the gums more spongy and bleeding, the breath very offensive, the excretions both from the bladder and bowels fetid, the pulse weak and feeble, syncope frequent, hæmorrhages more copious and general, and death a more common finale of the disorder. On the other hand, it has been observed, in sea scurvy, that the physical depression is greater than that of the mind, that the latter is bright and vigorous to the last, and that the body dies suddenly from efforts made in obedience to the command of the will.

PURPURA URTICANS commences with round elevations of a whitish or pale colour, sometimes reddish, which resemble the rounded wheals of nettle-rash; but there is generally less irritation and less pruritus, and the wheals are less evanescent. When of a reddish hue, they have seemed to belong rather to erythema tuberosum than to urticaria; they are somewhat elevated, generally well-defined, and soon become purple and livid, after which they subside slowly, leaving behind them brownish-yellow stains; as they are successive in eruption, they may be seen in all their stages at the same moment. They occur, for the most part, on the lower limbs, and are commonly attended with some degree of cedema. We have seen purpura urticans most frequently in female servants, in whom it has been associated with uterine disturbance; in similar cases, in fact, to those in which erythema tuberosum is apt to be found; and we have also seen it associated with eczema in a person of gouty diathesis and intemperate habits.

PURPURA SENILIS is not very unfrequent in elderly women, particularly in those whose arms have been much exposed to local irritants of different kinds, such as the sun's rays, water, &c., and is always to be met with in our workhouses. It is associated with a preternatural degree of thinness of the integument, which is embrowned, yellowish, and mottled, being sometimes smooth and sometimes rigid and wrinkled.

"It appears," says Bateman, "principally along the outside of

the forearm, in successive dark purple blotches of an irregular form and various magnitude. Each of these continues from a week to ten or twelve days, when the extravasated blood is absorbed. A constant series of these ecchymoses had appeared in one case during ten years, and in others for a shorter period; but in all the skin of the arms was left of a brown colour." The general health is in no wise affected, and the patient suffers no inconvenience beyond that of the unsightly appearance of the blotches.

DIAGNOSIS.—The purple and livid colour of the spots; the blood being not in the vessels, but extravasated in the tissue of the skin; and the persistence of the spots under pressure with the finger, are the distinguishing signs of purpura. The purple and discoloured stains which follow some forms of roseola, and the purple pimples of lichen lividus, are distinguished by their connection with a distinct roseolous eruption on the one hand, and a papulous eruption on the other.

CAUSE.—The cause of purpura is cachexia resulting from mal-assimilation; the mal-assimilation being one while the effect of generally depressing causes, whether physical or mental; another while the effect of improper or insufficient food, malarious atmosphere, excessive fatigue, defective ventilation, neglect of exercise and habits of cleanliness; or, again, it may be the consequence of some organic disease, of local weakening of the tissues, as in anasarca; or of general and local weakening, as in old age. The severity or violence of the cause may be very different in different constitutions; in some purpura is easily induced, and the affection is unimportant; in others, the system of the individual only yields when overpowered, and the disease is therefore grave.

PROGNOSIS.—Purpura may be trifling or serious, according to the nature of the cause, the constitution of the individual, and the violence of the disease. Purpura simplex is not very important; but purpura hæmorrhagica is always serious, in consequence of its complication with internal hæmorrhage, which may take place in a vital organ, as in the lungs, and prove suddenly fatal.

TREATMENT.—Originating in debility, our treatment must be strengthening in its operation. It may be necessary at first to regulate the digestive organs and secretions; and when this is

effected, we must have recourse to tonics, such as bark with sulphuric acid, the citrate of iron and quinine, or the nitro-muriatic acid with bitters.

The diet should be generous but moderate, and consist of meat and wine, to which, in sea-scurvy, we may add lemon-juice and potatoes, with a proper allowance of malt or spruce beer.

Locally, benefit may be obtained from the use of tepid baths, with the free use of the juniper-tar soap. Moderate stimulation of the skin may also be attempted by means of lotions containing the sesquicarbonate of ammonia, or the bichloride of mercury with the emulsion of bitter almonds. These latter applications are especially suitable in the urticating form of the disease.

CHAPTER X.

DEVELOPMENTAL AND NUTRITIVE AFFECTIONS.

UNDER this head we have assembled some important alterations of structure of the skin, alterations which are not the result of inflammatory action, but which are nevertheless equally grave in their tendency to determine disease of the cutaneous organ. The terms *defect of development* and *defect of nutrition*, taken in their widest sense, express the fundamental cause out of which these affections have their origin; and if we assume a series of conditions precisely opposite to those of health, we shall then have before us the leading features of these diseases.

Thus, if we assume the skin to be entirely abnormal in its character, to be dry, hard, thin, inelastic, brittle, discoloured, rough, scaly, and in parts too small for the body it has to contain, we shall then have a fair word-picture of a state of disease to which we give the name of *xeroderma* or dry skin (*ξηρος, aridus*). If, in the next place, we regard only the surface, and look upon an epidermis which is rough, uneven, sordid, broken up into ragged plates, or into smaller fractions corresponding with the areas of the lines of motion of the skin, we shall then have suggested to us the idea conveyed by the term *ichthyosis* (*ιχθυα, fish-skin*), a scaly covering like that of a fish. If, in addition to these two conditions, we suppose an altered state of the sebiparous function, and an accumulation of the sebaceous substance on the skin in the form of dark grey or greenish scales or spines, suggesting the idea of the coat of a lizard (*σαυρος*), we then have a form of the affection to which we have attached the term *sauriosis*. Or if, instead of the extreme degree of abnormality indicated by these terms, we have before us a skin which is less dry, less hard, but equally or even more discoloured, that is, sordid, or, in other words, apt to the accumulation of concretions of the exuviae of the sebaceous and epidermic matter on the surface, which has originated in a previously healthy skin, and which has come on by degrees, which is, in fact, a disease, and has originated out of morbid causes, we shall then have a state which we have denominated *cachexia cutis*.

The diseases included under this head are, therefore, four in number:—

Xeroderma simplex
 „ ichthyoides

Xeroderma saurioides
 Cachexia cutis

XERODERMA.

XERODERMA is congenital; it presents the appearance of a dry, impoverished, discoloured, ill-developed, and ill-nourished skin. In a young child possessing such a skin, we may find, instead of the smooth, pliant, elastic, fresh, healthy pellicle of infancy, the dry, wrinkled, tough, and discoloured skin of extreme old age. We see at a glance defect of development and defect of nutrition. The characters of the disease are too obvious to be mistaken. The defect of development and growth of the skin is often curiously manifest on the face, where the skin appears to be too small for the features. The eyelids are insufficiently large; the nose looks pinched; and the skin is stretched across the cheeks. It is equally exhibited on the hands and the feet; the bones have grown faster than the skin; the fingers look contracted, and the knuckles of the metacarpo-phalangeal articulation crop up in what should be the middle of the back of the hand. The same singular want of relation between the substance and the envelope is seen in the feet. On other parts of the body, as on the neck, the skin forms wrinkles, from hardness and want of elasticity; and on the upper arms and legs hangs loosely about the limb, from the total absence of fat in the subcutaneous cellular tissue. Another peculiarity observed in the palms of the hands, where the skin is thick, dense, and rigid, dry to the touch, and deeply marked by the lines of motion; and the nails are very generally brittle and imperfect.

The colour of the skin is a greyish yellow, which gives it a dirty look that no washing will remove; and the scarlet tint of the arterial blood seen through the more vascular parts of the skin, as of the face, has a strangely dull and unnatural appearance.

The epidermis necessarily participates in the abnormal state; besides being discoloured, it is imperfectly elaborated; it is

inelastic and fragile, and breaks up into segments of various size and shape; the size of the broken particles being in some measure dependent on the organization of the cuticle, and in some measure upon the distribution of the lines of motion of the part. On the scalp the detrita of the epidermis are furfuraceous, as is common in that situation; on the face and cheeks the cuticle exuviates in thin plates, and the surface is roughened with the ragged edges of these plates; behind the ears, on the eyelids, around the mouth, upon the neck, over the front of the chest and trunk, and in the bends of the joints, the exuviation is farinaceous; on the limbs and back the cuticle is broken up into polygonal scales; and on the palm of the hands and sole of the feet it is thrown off in plates of considerable extent.

These various appearances assumed by the epidermis in the exuviation of its superficial layers, varieties that admit of a simple physiological explanation, have suggested an equal number of distinguishing terms. Thus the squamous form of marking of the epidermis gave origin to the specific term *Ichthyosis*, and the varieties of ichthyosis, according to different authors, are numerous; for example, the branny and mealy exfoliation of the cuticle, as seen on the head and neck, and flexures of the joints, is an *ichthyosis furfuracea* and *farinacea*. The net-like tracery of the lines of motion, marked by a white ragged edge, and usually seen upon the legs, has originated the term *ichthyosis reticulata*; the areæ of these same lines, usually smooth and glossy, have given rise to the term *ichthyosis nitida*; and a certain nacreous translucency of the same areæ is the ground of a nacreous variety (*ichthyose nacrée*) admitted by Alibert.

The modifications in the form of the scales of xeroderma ichthyoides are referrible, as we have seen, to those anatomical relations of the epidermis to the corium that we have already studied in the first chapter of this book; and we may, by a careful inspection of the surface of the skin in a state of health, predict the form and arrangement of its elements in a state of disease. In the minute subdivision of the surface by the lines of motion on the eyelids, on the front of the neck, and the flexures of the joints, we see a contrivance for the production of a powdery or farinaceous desquamation; in the smooth interstices between the hair-follicles of the scalp, we see the mould of the

furfuraceous scales which it casts off in such great abundance. On the legs we see the broader areas, that are sometimes rough and dirty, and sometimes glossy and silvery in hue; in other parts we find small polygonal beds, that create a scale which is small and thick; is apt to adhere very firmly, and to be cast seldomer than in other situations: such parts are the abdomen, the inside of the thighs, and the convexities of the joints; and these smaller, harder, thicker, and generally dirty scales, have suggested the idea of a serpent's skin—*ichthyosis serpentina*.

The history of xeroderma and ichthyosis is a narrative of general degradation of structure of the skin, in which all tissues participate; the corium is hard and thin, and ill-nourished; not unfrequently, in the hands and feet, breaking into deep fissures; the cuticle and the nails are imperfectly formed and brittle, and the former prone to break up into scales; and the glands of the skin are equally involved in abnormal action. Not unfrequently there is a total absence of perspiration, or only a partial perspiration; and sometimes the sebaceous glands fail in their function completely, or, continuing to secrete, produce a sebaceous matter, which is altogether altered in its quality from the ordinary standard. Instead of flowing forth upon the skin and becoming lost, it seems to become blended with the cuticle, to inspissate and to dry up into horny masses, which go on increasing in size until they attain a considerable length.

We are thus introduced to a new form of ichthyosis, one in which the sebaceous substance plays a conspicuous part, and one which presents characters so widely different from epidermic ichthyosis as to deserve a different designation. The disease in question is a sebaceous ichthyosis, and as the sebaceous matter dries up into a kind of horn, we may also term it *horny ichthyosis*, *ichthyosis sebacea cornea*.

Horny ichthyosis, like epidermic ichthyosis, is dependent on the organic state of alteration of the skin that we have previously termed xeroderma; and the abnormal skin may remain stationary in its xerodermatous form; or it may become an ichthyoid desquamation; or it may assume the characters of the form of disease at present under consideration, namely, a corneous ichthyosis; or, and not improbably, the whole of these forms may be present together on different parts of the surface; on one part we may find simple xeroderma; in another, squamous ichthyosis;

and in a third, as upon the abdomen, the inside of the thighs, and around the joints, the character of the affection may be an ichthyosis cornea.

The sebaceous substance poured out upon the surface of the skin adheres to the epidermis with considerable tenacity; so much so, that an attempt to pick off one of the scales generally results in tearing the cuticle and producing an excoriation. At its escape from the sebiferous ducts, it is a greasy paste of a white colour, speedily becoming grey and brown in colour, and is moulded into a scale-like shape by the form of the little area to which it adheres, and by the mutual pressure of similar concretions, occupying neighbouring areæ. This peculiarity is the more conspicuous when the scale, by constant addition to its surface and growth from below, assumes a more considerable length, and is converted into a spine. The spines may attain a length of a quarter or half an inch, are uniform in height, rounded at the angles, and have a rounded base.

Ichthyosis sebacea, from the nature of its growth, presents two varieties. In the one, the concretion never exceeds the dimensions of a pretty thick scale; this is *ichthyosis sebacea squamosa*; while in the other the scales go on increasing in length until they acquire the character of spines, this latter is *ichthyosis sebacea spinosa*. The general appearance of ichthyosis sebacea, as compared with ichthyosis epidermidis; its thick and convex scales, firm and horny, of a greenish-brown colour, and uniform in dimensions, is such as to suggest the skin of a saurian reptile; for example, of a lizard rather than a fish; and with this view, we have termed it "sauriderma:" *sauriderma squamosum* and *sauriderma spinosum*.

There are no constitutional symptoms belonging to xeroderma ichthyosis and sauriosis; they are purely local in their nature, dependent on congenital mal-development and subsequent mal-nutrition.

XERODERMA SIMPLEX.—This term is reserved for the milder form of the affection, in which the all-pervading dryness of the skin, with constant desquamation, is the predominating character, a state that hardly deserves to be distinguished by the term ichthyosis, but which by neglect might degenerate into that disease. Ichthyosis, in its progress towards cure, passes through the stage of xeroderma, and a cured ichthyosis not unfre-

quently presents the characters of xeroderma for the rest of life.

The signs of xeroderma are, a dry and parched state of the skin of the whole body, especially remarkable in the hands; the backs of the hands being dry and wrinkled, the palms thick and hard; a dryness and roughness, and often a glossiness of the face, and sometimes a seeming greasiness of the surface. The hair is usually scanty; the person is thin; there is commonly an absence of perspiration; and the pulse is apt to be unnaturally quickened by violent or rapid muscular action. The appearance of the skin is not very unlike that which succeeds to eczema infantile; the chief difference being the absence of the disproportionate growth of the skin to that of the body which it invests, and particularly the hands and feet, in xeroderma.

XERODERMA ICHTHYOIDES, or ichthyosis vera, is known by the squamous forms assumed by the exfoliating and desquamating epidermis. The epidermis has a greyish or dirty tint; it is more or less broken up into polygonal scales, corresponding with the size and form of the areas bounded by the lines of motion of the skin; the lines of motion are ragged; and in the hands and feet the corium is apt to split in the course of these lines.

The general symptoms of thinness of the person; a deficiency of perspiratory and sebaceous secretion; and a tendency to irritability of the heart's action, are the same as in xeroderma simplex.

XERODERMA SAURIOIDES, or ichthyosis spuria, is a xeroderma, in which, besides the ordinary symptoms appertaining to that disease, there is also an accumulation of sebaceous substance on the surface of the skin, the sebaceous substance undergoing inspissation by desiccation, and one while assuming the form of scales, *sauriderma squamosum*; and another while of spines, *sauriderma spinosum*.

SAURIDERMA SQUAMOSUM, when congenital in its origin, is a general affection; and when it does not present the squamous form, the state of skin constituting xeroderma is present. Sometimes, however, it is accidental in its development, and partial in its manifestation. The squamæ are most abundantly developed on the abdomen; on the thin skin of the inside and front of the thighs; on the inside of the arms; on the flexures of the limbs, and on the neck.

The accidental form of *sauriderma squamosum* is commonly met with in elderly persons, and is developed on the face; usually on the cheeks, and sometimes on the temples or on the side of the nose. It is a concretion of sebaceous substance, of a dark grey colour, hard, and closely adherent to the skin; generally implanted on a patch of congested skin, and leaving an excoriation when removed with force. These inflamed spots are generally obstinate, and indisposed to take on a curative action.

SAURIDERMA SPINOSUM,* or *ichthyosis sebacea spinosa*, is a form of the affection in which the scales grow to a considerable length, and are termed spines; the disorder being named in consequence, the *porcupine disease*. The spines are developed more or less generally over the surface of the body, and are sometimes partial, being limited to the region of the joints.

Willan has pointed out two appearances which the local forms of this disease sometimes present, and distinguished them by the name of *ichthyosis cornea*. In one of these the spines are curved or twisted, and unusually long, and suggest the idea of miniature ram's horns; in the other the spine is broad and single, and constitutes a horn-like mass. These peculiarities are rare, and no purpose is gained by their separation from the typical disorder.

CACHEXIA CUTIS is a state of the skin which is common to every period of life, but which we have met with most frequently in young women. It occurs for the most part in the face; the skin loses its colour and its freshness; becomes thin and discoloured, and resembles parchment or leather rather than living integument. In two cases which have recently come before us, two ladies of the age of twenty and twenty-five, one originated in a state of cachexia induced by disorder of the womb, and the other in defective nutrition of the skin, the sequel of typhoid fever.

DIAGNOSIS.—The only disease with which xeroderma can be confounded is *eczema squamosum*, or the dry, harsh, and thickened state of the skin which sometimes follows *eczema infantile*. *Ichthyosis* and *sauriosis* are unlike any other affections, and totally dissimilar to the desquamation of inflammatory affections of the skin. *Sauriderma squamosum* of the face we have known to be mistaken for a malignant disease.

CAUSE.—The cause of xeroderma and its allies is a special

debility of the skin, originating probably in general debility. These affections are congenital, and frequently hereditary. In a family of four children born in India, two are the subject of xeroderma, and the other two are free. In these children the disease was congenital and idiopathic.

PROGNOSIS.—As a modification of development and nutrition rather than a disease, these disorders are free from any danger, and admit of being greatly improved by proper treatment, if not wholly cured.

TREATMENT.—The treatment of xeroderma and cachexia cutis is to strengthen the skin by moderate stimulation, applied both externally and internally; externally by local means, and internally by the judicious and careful administration of arsenic.

The *local* remedies are, ablutions with the juniper-tar soap; the Turkish bath, when it can be obtained conveniently; and anointing the skin thoroughly with neat's-foot oil or benzoated lard after the ablution or bath. As the cure advances, some mild stimulus may be added to the local remedy. By the aid of a few washings and a few baths, all the scales and sordes can be removed from the skin, and it is not difficult afterwards to keep them in subjection.

In the *sauriderma squamosum* of the face of elderly persons, the squamæ should be removed in the first instance with the help of the starch or arrowroot poultice. The juniper-tar soap should be used twice in the day, and a mild stimulating ointment after the ablutions. The best ointment for this purpose is one of the ammonio-chloride of mercury (one part to three of lard), with ten grains of camphor to the ounce; or, if a lotion be preferred, the bichloride of mercury in emulsion of bitter almonds will be found of service.

For the *cachexia cutis*, ablutions with the juniper-tar soap, a lotion of the bichloride of mercury in emulsion of bitter almonds, and the internal administration of arsenic, is the proper treatment. The resort to arsenic presupposes that all the usual indications of regulation of the digestive organs and secretions have been attended to, in addition to any special indications belonging to the particular case.

CHAPTER XI.

HYPERTROPHIC AND ATROPHIC AFFECTIONS.

By hypertrophic and atrophic affections, we mean, on the one hand, enlargements of the skin resulting from superabundant growth, and the opposite condition to this, namely, wasting of the skin. Hypertrophic affections are illustrated by the common tegumentary mole, *nævus hypertrophicus*; by ecphymata or excrescences of the skin, a group which includes tegumentary molluscum, verruca, and clavus; by an abnormal growth of the fibrous tissue of the skin, kelis; and by excessive growth of the integument and subcutaneous tissues, constituting *bucnemia tropica*, or Barbadoes leg. We may enumerate them as follows:—

Nævus hypertrophicus
Ecphyma

Kelis
Bucnemia tropica

NÆVUS HYPERTROPHICUS.

NÆVUS HYPERTROPHICUS, or common tegumentary mole, is for the most part congenital, but is occasionally developed at a later period of life. It is a simple enlargement of a portion of the skin, with an increase in some instances of one or other of its component tissues, but without any morbid alteration. In one form of the affection the hypertrophy extends to all the tissues of the integument without distinction, and we have as the result a simple prominence of the skin of small extent, and usually circular in its form; this is the *nævus hypertrophicus vulgaris*. In another instance, besides simple enlargement of the integument, there is an increase in the quantity of the pigment of the part, rendering it brown or more or less black on the summit, this is *nævus hypertrophicus pigmentosus*; and a third form is distinguished by a growth of hair from the part more or less considerable, this is the *nævus hypertrophicus pilosus*.

The forms of *nævus hypertrophicus* may be stated therefore as follows :—

<i>Nævus hypertrophicus vulgaris</i>		
"	"	<i>pigmentosus</i>
"	"	<i>pilosus</i>

NÆVUS HYPERTROPHICUS VULGARIS is a tegumentary prominence of the skin, of circular figure, bald and smooth, and not distinguishable in colour from the surrounding skin : it is most commonly met with on the face and on the back.

NÆVUS HYPERTROPHICUS PIGMENTOSUS, or *spilus*, is commonly less prominent than *nævus vulgaris*, and is remarkable for its colour as compared with the surrounding skin. With increased energy of growth of the affected spot, there is also a more energetic production of pigment, which varies in tint of colour from a yellowish brown to a deep black. Pigmentary *nævi* or *spili* are generally of small size, and circular in form ; at other times they are large and irregular in figure, and occasionally have been known to cover one half the face, or a considerable portion of the trunk or limbs. They are most frequently met with on the face, and next in frequency on the back.

NÆVUS HYPERTROPHICUS PILOSUS is a prominence of the integument of a similar character to *nævus vulgaris*, but covered by a growth of short and stiff hairs, sometimes of considerable length, and associated with an increased production of pigment in the *rete mucosum*. *Pilous nævi* are met with on all parts of the skin which are normally organized for the growth of hair, and are only constantly absent in the palm of the hands and sole of the feet. We see them often on the face as a single small prominence covered with hair ; sometimes there are more than one, and they are not unfrequently intermingled with *nævi pigmentosi* ; at other times they occur on the trunk of the body or limbs in single patches of considerable extent, or as numerous patches dispersed over the skin. Alibert records the case of a young lady whose skin was studded, over nearly every part of the body, with moles of a deep-black colour, from which a long, black, thick, and harsh woolly hair was produced. Villermé, in his article on the hair, in the *Dictionnaire des Sciences Médicales*, observes, "I saw at Poitiers, in 1808, a poor child between six and eight years of age, that had a great number of mother's-

marks disposed in brown projecting patches of different dimensions, scattered over various parts of the body, with the exception of the feet and hands. The spots were covered with hair, shorter, and not quite so thick as the bristles of a wild boar, but presenting considerable analogy with them. This hairy covering, with the spots upon which they grew, occupied perhaps one-fifth of the surface of the body."

CAUSE.—Tegumentary *nævi* are for the most part congenital, and sometimes hereditary; and we must regard their origin as being physiological rather than pathological. Like vascular *nævi* they are termed mother's-marks, from the popular belief in their dependence on the imagination of the mother during pregnancy. Daniel Turner records the case of a girl who "was born all over hairy, from the mother's unhappy ruminating and often beholding the picture of St. John the Baptist hanging by her bedside, drawn in his hairy vesture." And, on questioning a boy as to a *nævus pilosus* of some size on the side of the jaw, he informed us that the patch represented a sucking pig that his mother had longed for during her pregnancy.

TREATMENT.—We are sometimes consulted as to the removal of tegumentary *nævi*, not on account of any inconvenience attending them, but on the ground of their occasioning deformity. They are easily removed by the knife, care being taken to direct the incisions in the line of the ordinary folds of the skin. But we prefer to effect their destruction with the *potassa fusa*. A point of *potassa fusa* is introduced into the centre of the *nævus*, it diffuses itself through the cellular mass; the disorganized tissue dries up into a scab, and falls off in ten or fourteen days, leaving very little trace of its existence. This method of treatment is alone applicable to *nævi* of small size: when of considerable extent, they are beyond the control either of knife or caustic.

ECPHYMA.

ECPHYMA, from *εκφυειν*, *educere*, signifies a growth or excrescence. Mason Good, to whom we are indebted for the term, applies it very aptly to those excrescences of the skin which are commonly termed *warts* and *corns*, and defines it to be "a superficial, permanent, indolent extuberance, mostly circumscribed."

We adopt it in this sense, and establish it as a genus having several species; for example:—

Ecphyma mollusciforme
 „ *acrochordon*

Ecphyma verruca
 „ *clavus*

ECPHYMA MOLLUSCIFORME is a prominence of skin produced by simple growth of the integument; it in no wise differs in colour or general appearance from the surrounding skin, is more or less pedunculated, but sometimes sessile; attains a size varying between a pea and a walnut, or pigeon's egg; is slow in its growth, and is more or less flabby to the touch, in consequence of the laxity of its cellular structure.

This is the disease which, with other growths of a different nature, has been termed “molluscum,” and to this form of tegumentary tumour the term is more applicable than to the glandular disorder which at present retains that name. It is soft to the touch, because its structure is a loose cellular tissue, inclosed in a covering of attenuated corium; it sometimes has the appearance of being lobulated or puckered on the surface; sometimes it looks dirty from the presence of black pigment, and occasionally it is studded with a few short hairs.

It would seem to partake in some measure of the structure of tegumentary nævus; but it differs from the latter in not being congenital; in its occurrence in elderly persons, or after the mid-period of life; in its dependence upon a weak and unhealthy condition of the skin; and in the want of hardness and resistance. Taken between the fingers, it gives the idea of a loose bag of integument, the looseness of the contained cellular tissue permitting of the inner walls being rolled upon each other.

This form of ecphyma is met with chiefly in elderly persons, and on the neck, the back, the chest, and other parts of the trunk, but rarely on the limbs. It is easily and safely removed by snipping with the scissors, or by ligature. When neglected, we have seen it become the seat of a painful excoriation and ulceration.

ECPHYMA ACROCHORDON, or pedunculate wart (*verruca acrochordon*), is a diminutive form of the preceding not uncommonly met with on the neck and trunk of the body in adults, but more frequently in elderly persons. It has the appearance of a small pendulous bag of integument, and in some instances appears to

be formed by the expulsion of the hardened gland from a small tubercle of *molluscum vulgare*. It is not usually solitary like *ecphyma mollusciforme*, but is frequently sprinkled over the neck so as to form a small crop that might be mistaken for some form of lichen, but for the absence of all trace of redness and the pendulous figure of the little bulbous mass.

Ecphyma acrochordon is a disease of an unhealthy and ill-nourished skin, and is due to want of tone and vigour in the cutaneous tissues.

EOPHYMA VERRUCA.

VERRUCA is a small hard tubercle resulting from excessive growth of certain of the papillæ of the skin, accompanied with a proportionate increase of the epidermis. The largest of the verrucæ are met with on the hands and feet, where the cutaneous papillæ are of greater length than elsewhere, and the epidermis thicker. In this situation they rarely exceed the dimensions of a split pea, while on other parts of the skin they are considerably smaller and less prominent.

In structure, a verruca is composed of a cluster of enlarged papillæ covered with a little mound of epidermis; the number of the papillæ determining the breadth of the tubercle, their length its height. Warts are circular in figure, and when of small size, as upon the body generally, are smooth on the surface; but when of considerable bulk, as upon the hands and fingers, the summit is apt to be worn off, is rough and discoloured, and resembles the extremity of a bundle of fibres, surrounded by a collar of thickened epidermis. This, in fact, is the real structure of a large wart, the hypertrophied papillæ acting separately and producing each for itself a sheath of epidermis. The cuticular formation above the heads of the papillæ is necessarily composed of these vertical sheaths, converted into solid fibres in their growth, and adherent to adjoining sheaths, while the epidermis around the base of the wart, generally somewhat thickened, acts as the collar which holds all these sheaths or fibres together.

A section of the wart exhibits the structure above described very clearly, and if we make transverse sections of the summit, we bring it more distinctly into view. These sections also show

that the papillæ are unequal in length, for in successive sections we shall cut across at first one and then several papillæ, until, as we proceed more deeply, we find the section evenly studded all over with the bleeding ends of divided papillæ. A similar demonstration of the fibrous structure of a wart is afforded by watching the progress of a chronic wart of large size. At first the summit is rugged and composed of isolated particles, the ends of the fibres, in popular language, for popular observation is often in advance of science, termed the *seeds* of the wart; the verruca in question being a "seedy wart." In the next place, the wart is apt to split in the direction of these vertical fibres, sometimes into two or more portions; and then we have what has been termed a lobulated wart, *verruca lobosa*, and popularly a bleeding wart.

Warts are developed most frequently on the hands, next on the wrists, the forehead, the scalp, and the trunk of the body, and are more common in young and aged persons than in the adult. In children they are found usually on the hands and fingers, and on young persons after puberty are met with on other parts of the body.

Occasionally we meet with what may be termed an eruption of warts, a crop consisting of fifty or a hundred, or several hundred small warts, clustered closely together. An eruption of this sort not unfrequently takes place on the forehead, near the margin of the scalp, and on the temples. We have seen it on the back of the wrists, extending for a short distance upon the forearms, and upon the dorsum of the hands. Lately, we had before us a little girl, in whom there existed a patch of closely-set verrucæ, which commenced on the back of the shoulder and upper arm, and extended downwards upon the back, widening as it progressed, to the lower part of the thorax. Rayer quotes from M. Rennes another instance of a crop of warts of considerable extent; "a band of agglomerated warts, from eight lines to an inch in breadth, extended from the upper and anterior part of the right side of the breast, underneath the clavicle along the arm and fore-arm of the same side, till it reached the carpus, where it increased considerably in breadth, and finally overspread the whole palm of the hand."

The common wart, *verruca vulgaris*; the small and confluent warts, *verrucae minimæ*, *verrucae confluentes*; and the fibrous

and the lobulated warts, verrucæ fibrosæ and verrucæ lobosæ, have been termed sessile warts, verrucæ sessiles, in order to distinguish them from the verruca acrochordon or pedunculate wart; but we have shown in the preceding section that the acrochordon is a growth of the integument, without increase of the dimensions of the papillæ and epidermis, a little soft and pendulous bag of skin, and totally different in every particular, excepting that of being an excrescence of the skin, from verruca; and we have therefore grouped it more in accordance with its special characters, with ephyma mollusciforme.

We have sometimes seen a filiform kind of wart, *verruca filiformis*, which appears to originate in hypertrophy of a single papilla of the skin, or perhaps of a fasciculus of three or four papillæ. Rayer compares a patch of these verrucæ very aptly to "coarse plush."

There remains, however, to be considered another form of wart, first described, we believe, by ourselves; namely, *verruca digitata*. This wart is by no means uncommon; it is met with on the scalp, and sometimes exists in that situation in considerable number. Fixed on the skin of the head, and throwing out on all sides its pale, finger-like papillæ, it may be mistaken for an insect, until its fixed adhesion to the skin and immobility prove the contrary. Sometimes the digitated wart is single, or a few only are met with; at other times, they are so numerous as to act as an impediment to combing the head. They may be small, consisting of two or three digitated papillæ only, or large, forming a tuft of hypertrophous papillæ of considerable size. They are longer than ordinary warts, and commonly range from two to four lines in height.

The *diagnosis* of verruca, after the above description, will not be difficult to determine; the only form of affection with which it is likely to be confounded being the smaller molluscous ephyma and acrochordon.

The *cause* of verrucæ is an abnormal nutrition of the skin, sometimes determined, apparently, by superabundant energy of growth operating upon a sound skin, and sometimes upon a weak and impoverished skin, as in elderly persons.

The *prognosis* is favourable. Verruca is an inconvenience rather than a disease; at its worst it is a deformity; and is not difficult of cure even in its most extended shape.

TREATMENT.—The best application for the removal of isolated warts is the potassa fusa; and it is also the most suitable remedy for the verrucæ digitatæ of the scalp. If caustic potash be objected to, any of the strong acids may be employed, and especially the acidum aceticum fortius. The potassa fusa destroys the wart at one application; the acids require to be used at short intervals for a certain period of time.

When warts are general in their eruption, a constitutional treatment may be called for, and arsenic will be found remarkably successful in their dispersion; indeed, in certain cases is the only certain means of cure. In these general cases, the constitutional remedy may be aided by painting the eruption with the compound tincture of iodine, or sponging with a moderately strong lotion of the bichloride of mercury.

ECPHYMA CLAVUS.

CLAVUS is an increased thickness or hypertrophy of the epidermis, generally situated on a prominent part of the body, for example, the joint of a toe, and due to an inflammatory congestion of the skin, the result of pressure or friction.

Corns may be developed on any part of the body where pressure and friction exist to an inordinate degree; thus they may be occasioned by too tight or too loose a shoe; in the one case being due to pressure, in the other to friction; and they are most actively produced when both these causes are combined. They are met with the most frequently on the feet, on account of the unpliant nature of the coverings of those organs; between the toes from pressure only; and on other parts of the body from distortion, or local pressure, induced by different exercises, occupations, or trades.

The first effect of pressure and friction of a portion of skin interposed between the prominence of a bone and another resisting body, such as a shoe, is soreness and tenderness; to this state follows a larger afflux of blood than natural, causing congestion: with congestion carried to a moderate degree, there is a more energetic nutrition of the corium, and a more active cell-formation, operating in the production of cuticle. We have, therefore, before us, the process of construction of a corn, or

rather, of a callus or callosity, in all its details; namely, pressure, congestion, and increased formation of epidermis. The kind of corn so produced is a *laminated corn*, or *callus*. There is no alteration in the texture of the epidermis, and no alteration in the corium beyond vascular congestion, the result of a moderate degree of inflammation. In a callus, the epidermis will sometimes acquire a very considerable degree of thickness, and, as may be inferred, the increased thickness will contribute to the aggravation of the real evil rather than to its alleviation; the corium beneath the callus is subject to increase of inflammation from time to time, when more than the usual amount of pressure is exerted, or where it is continued for a longer period; and not unfrequently an effusion of blood takes place from the bruised surface. In making a section of such a callus, the epidermis is found to be streaked with different tints of colour, produced by layers of blood effused from time to time, and fading in hue as they advance in age; and the laminated structure of the callus is self-evident.

The callus occupies a surface of considerable extent, and produces a certain uniformity of pressure on the congested corium; hence it is more bearable than if its size were smaller, and the pressure consequently less diffused. But, besides the callus, we have also produced by the causes above mentioned, a thickening of the epidermis of a more limited extent, and a new series of pathological phenomena are set up: the pressure of the thickened mass of cuticle on the tender and inflamed corium at a given point produces a depression; the continuance of the pressure gives rise to absorption of the corium, and very soon the plane surface of the corium is converted into a cup or crater. The thickened mass of cuticle is pressed into this cup, and is pointed or blunt in proportion to the breadth and depth of the cup, reminding us of a nail (clavus) inserted into the skin; hence the scientific designation of the disease.

The new position of the formative organ of the epidermis, namely, the corium, occasions an alteration in the direction of the strata of the epidermis. The strata formed within the cup assume naturally the cup shape, and as they rise to the surface present the broken edges of a cup, with a small central mass or nucleus (the eye of the corn), suggesting the idea of vertical fibres rising to the surface, and the ruggedness is increased by

the broken edge of the epidermis that corresponds with the border of the cup. The fibrous appearance of the centre of the clavus has suggested the idea of roots; and the central cup-formed mass of hard and condensed cuticle has been regarded as the core of the corn. The notion of a nail driven into the flesh is not so remarkable, if we contemplate the constant pressure of this sharp point into a bed of tender and inflamed corium, as must necessarily happen in the act of walking; and we perceive also the principle on which the chiropodist operates in digging out the corn.

A survey of the process by which the growth into the skin is accomplished by the clavus will explain to us other phenomena that are apt to take place in a foot that is invaded by this troublesome disorder. Subcutaneous bursæ are apt to inflame giving rise to *bunion*; the heads of bones become enlarged, from extension of inflammation to the fibrous tissues of the joint; the bed of the clavus often suppurates; and sometimes the ulceration proceeds so deeply as to perforate the joints of the toes, produce absorption of the heads of the bones.

There is one form of clavus, called the *soft corn*, which is intermediate in its characters between the callus and the common corn. Like callus, it makes no projection superficially; and like clavus, it grows inwards to a considerable depth, producing absorption of the corium, and often suppuration. The soft corn is situated between the toes, and results from the pressure of the joint of one toe against a point of skin of the opposite toe; sometimes the corn is formed on the side corresponding with the offending joint, and sometimes on both. Constantly moistened with the perspiration taking place between the toes, the thickened cuticle is commonly white and sodden, hence its name, *soft corn*; and the softening is not unfrequently increased by a serous effusion which takes place from the surface of its cup. The cup is converted into a kind of vascular mucous membrane, and continues to secrete an albuminous fluid for many months. Sometimes the thickened epidermis is perforated in the centre, and the effusion issues through the aperture; and sometimes the corium of the inflamed cup takes on to suppurate. Soft corns are always peculiarly painful, and we have known them give rise to deep and obstinate ulcerations, and produce caries of the bone.

The *diagnosis*, the *cause*, and the *prognosis* of corns may be gathered from our description of their history and pathology.

TREATMENT.—“Remove the cause” is a favourite dogma of medicine; but the removal of the cause is not always practicable; hence we must study how we can best afford relief to these troublesome disorders. Callus may be softened by moisture, as by soaking in warm water; by the application of a starch or soap poultice; and being softened, the thickened cuticle may be thinned by scraping with a blunt knife; or the albuminous epidermis may be dissolved by an alkaline solution and moderate friction. When the thickening has been reduced sufficiently, it may be kept down by daily washing with soap.

Clavus and the soft corn require removal with the knife; and in effecting this purpose, their mode of formation is to be borne in mind. If the soft corn be of moderate size, a single pinch with a pair of pointed scissors will effect its removal, while the hard callus will require a patient digging with the point of not too sharp a knife. The eye of the corn may always be made visible by rubbing the part with eau de Cologne or spirits of wine, and any remains of the core may be detected in this way, either during or after the operation.

The removal of a callus or of a corn may be very considerably aided by the use of the compound tincture of iodine painted on the swelling. When the corn is painful, this application subdues its sensibility, and it also renders the cuticle dry and friable, and easy of removal by means of a file. Soap and water, so useful to the skin in many ways, are especially serviceable to feet afflicted with corns, and particularly when there are soft corns. Daily washing with soap, and the subsequent interposition of a piece of cotton wool between the toes, may be considered as a cure for soft corns; and in these cases the skin may be hardened by sponging with spirits of camphor after the washing. The cotton wool should be removed at night, and this is a good time for the use of the camphorated spirit.

KELIS.

KELIS is a flat tumour of the skin, resulting from hypertrophy of the fibrous tissue of the corium, and producing absorption of its papillary layer. The tumour is composed of a dense mass

of fibrous tissue, covered by a thin, semi-transparent and homogeneous layer of rudimentary fibrous tissue similar to that which covers an ordinary cicatrix. In a word, kelis is a degeneration of structure of the corium, the deeper part being converted into a coarse and ligamentous form of fibrous tissue, and the superficial part passing into a rudimentary form of the same tissue.

As the pathological alteration which constitutes kelis begins in the deep layer of the corium and rises gradually to the surface, there is some difference of appearance of the tumours, having reference to their stage of progress. In their early beginning, the papillary or vascular layer of the derma is unscathed, and the growth has the appearance of a deep tumour, while at a late period the disease exactly resembles a cicatrix, but raised above the general level of the skin. In the latter state, which may be regarded as its fully developed and characteristic form, it is of a pinkish white colour, with an elevation of three or four lines, marked on the surface with ridges formed by fibrous bands and cords, which sometimes radiate at each end from a central ridge, and sometimes constitute a coarse network, bounded at some parts of its circumference by a rounded and sometimes free border; at others sinking into the skin by thick processes, which suggest the idea of roots; the immediate surface being smooth, glossy, soft, and velvety to the touch, semi-transparent, and traversed by small blood-vessels, which pursue a straggling course between the fibrous bands, and dip into the deeper tissues from point to point.

Kelis makes its beginning either as a cylindrical prominence of the thickened and indurated fibrous tissue, *kelis cylindracea*, or as a tubercle. When it appears as a cylindrical prominence, one end of the cylinder is commonly rounded and larger than the other, *kelis clavata*. In its tubercular form, two tubercles very commonly show themselves at the same time, and after a while are united by a ridge, sometimes simple and sometimes nodulated, and so give rise to a tubercle resembling a dumb-bell. At other times the tubercle spreads out into an oval disk, *kelis ovalis*, or, spreading out more irregularly, appears to be implanted by its angles into the deeper portion of the corium, *kelis radiceformis*. This latter conformation has suggested its comparison with a crab.

The spreading kelis frequently assumes a remarkable figure ;

nearly square in its dimensions, it projects at the four angles into a rounded cord, which sinks into the skin like a root, and in general appearance resembles the skin of an animal with outspread legs; at other times it is not unlike a bird, with head and spreading wings, and tail. By the vulgar, the spreading kelis has been mistaken for a toad half-buried in the skin; and, with its borders free and overlapping the sound skin sometimes to the extent of an inch, there would appear to be some ground for the popular delusion.

Kelis is sometimes single; more frequently there are several tumours; and sometimes a part of the body, such as the breast, is studded by a multitude. The single tumours are most apt to take on the spreading character, and very frequently they enlarge by uniting with outlying tubercles, and in this manner create the appearance of legs or roots. There are certain situations also which are not only favourable for the development of the tumour, but also for its growth; for example, the region of the sternum. Whether this be attributable to a less active circulation at the middle line, or to the greater preponderance of fibrous tissue at this point, is difficult to say. On the sternum we have seen a kelis measuring nearly four inches in length by three inches in breadth. Another peculiarity of the disease is an absence of the symmetry of distribution that marks so many other affections; it is commonly met with on one side of the body only, and not at all, or in a less degree, upon the other. A lady at present under our care has thirty or forty tubercles on the front of the chest on one side, and none on the other side. A gentleman has a spreading kelis over the lower jaw on one side, but no other tubercle on the rest of the body; and another patient has a single kelis ovalis, or rather rotunda, on the summit of one shoulder.

Kelis is a disease of the adult, and not very uncommon; the proportion to other diseases of the skin being one in two hundred, or one-half per cent. It is pretty equally distributed between the sexes, and is chronic in its nature, commonly lasting a lifetime. We have met with examples which have been in existence without much alteration of character for nearly twenty years.

Kelis has no constitutional symptoms, and its subjects are frequently in the most perfect health. The local symptoms are some-

times very trifling and sometimes severe; in the latter case they are intermittent or occasional, and for the most part excited by warmth of the body and pressure. The symptoms most commonly complained of are, itching, tingling, smarting, burning, stinging, shooting, lancinating, &c., &c. One of our patients was annoyed with a degree of itching which rendered scratching irresistible; and several have spoken of a burning itching, and of a sensation which they compared to piercing the skin with hot needles.

Kelis is *idiopathic* and *traumatic*; idiopathic when it arises without any previous morbid alteration of the skin; traumatic when it follows an injury and rises upon the cicatrix of a scald or burn, upon that of a boil or strumous ulcer; or, in fact, succeeds any form of lesion of the skin. This difference of origin of the disease has created a distinction into *kelis vera* and *kelis spuria*; but as far as pathology is concerned, these two forms are identical. There is no difference of structure between them; the only difference relating to the amount of destruction of the corium by the injury which has acted as an exciting cause. It would therefore be more practical to abandon the terms "vera" and "spuria," and adopt instead the more correct and intelligible expressions *idiopathica* and *traumatica*. The practical dealing with this disease also suggests the use of the terms *kelis tuberculosa* and *kelis serpens*, the former retaining its tubercular form permanently, the latter taking on the spreading character.

DIAGNOSIS.—Kelis is dissimilar to every other affection; its resemblance to a cicatrix where there has been no previous injury; its elevation; the sensation communicated to the finger, soft on the surface, and like fibro-cartilage more deeply; its manifestly fibrous structure; its scanty supply of blood-vessels; the absence of any tendency to ulcerate; these are its characteristic signs. The tubercular form is recognized by the hardness and whiteness of its little tumours, and the absence of signs of cutaneous cancer, such as dilated veins and enlarged lymphatic glands. The traumatic form is nothing more than the unseemly growth of a cicatrix, a cicatrix which, instead of remaining smooth, throws up ridges and bands and cords of white fibrous tissue, and becomes uneven and ugly. We saw lately a little child that had a traumatic kelis on the hip in the cicatrix of a scald; and the motions of the limb are considerably impeded

by the thickness and rigidity of the injured skin, and will probably remain so for the rest of life.

CAUSE.—The cause of kelis is the development of a normal process in an abnormal position. Its essence is debility, for the change that takes place is one of degradation of structure; it is the accumulation of a lower in the place of a higher form of tissue, of a non-vascular white fibrous tissue, in lieu of the highly organized corium, and the still more highly organized *pars papillaris*. These considerations, it is true, do not help us much to the comprehension of the nature of the cause which determines the abnormal physiological process, but they may help us somewhat in laying a sound basis of treatment.

PROGNOSIS.—Kelis will sometimes undergo absorption and disperse spontaneously; but it must be confessed that this desirable change is very rare; more frequently it preserves a permanent hold on the skin, sometimes passive, at other times active and disposed to spread. Our prognosis as to cure is far from favourable.

TREATMENT.—The treatment of kelis offers the two usual indications, namely, constitutional and local. By constitutional treatment we may hope to modify and strengthen the structure of the skin, and bring about a change similar to that which happens in examples of spontaneous cure. The remedy suited for this purpose is arsenic, and we believe that we have seen very good results follow its use, and that of the liquor hydriodatis hydrargyri et arsenici. A protracted course of iodide of potassium or iodide of ammonium, or the bromide of potassium, may also be tried with a fair prospect of success.

Locally, a steadily continued pressure would undoubtedly be beneficial if it could be attained; and frequent pencilling with the liquor plumbi diacetatis not only allays irritation, but has seemed in some instances to be of service in contracting the size of the tumour. An ointment of the iodide of lead is also suitable, with the same object.

We may endeavour to disperse it by the application of the compound tincture of iodine, by compresses soaked in a solution of the iodide of potassium or ammonium, or by the use of ointments containing the same salts.

The destruction of the tumours has been attempted with the *potassa fusa*, but with no good results; and there is always the

danger in employing irritant remedies, of their increasing instead of diminishing the evil, by provoking a more rapid spread of the disease. A similar remark applies to operation with the knife; the knife removes the tumour, but it does not remove the diathesis; and there is every probability of the cicatrix of the wound being converted into a keloid growth. Dr. Warren reports a case operated on by the knife in which the disease broke out, not only in the cicatrix left by the wound, but also at the points through which the ligatures had passed; so that, as the result of the operation, there were seven tumours instead of one. Nevertheless, there is the hope that at some period or other of the disease the diathesis may have ceased, and then, if the patient were very desirous of an operation, it might be conscientiously attempted. As a rule, however, the less the tumours of kelis are interfered with the better; and, in some cases, with all the disposition for surgical assistance on the part of the patient, an operation would be useless, in consequence of the extent of surface covered by the tumours.

BUCNEMIA TROPICA.

BUCNEMIA is an hypertrophy of the skin, not limited to one of its parts, as the epidermis, the pars papillaris, or the corium, but involving the entire integument, together with the subcutaneous tissue, and in general the entire cellular tissue of the affected limb. It occurs for the most part in the lower extremities, and not unfrequently in the scrotum, and, as its name implies, is a disease of hot climates, being met with in the East and West Indies, in China, and in Africa. Its prevalence in one of the West-India islands, Barbadoes, has gained for it the name of the "Barbadoes leg."

Bucnemia attacks the foot, and gradually ascends the leg, until it involves the entire limb; and sometimes it invades both legs. The affected parts grow to a prodigious size; the thick and brawn-like integument overlaps and obliterates the toes; the integument of the leg forms a thick fold, which overhangs the ankle and foot, and conceals the latter to a greater or less extent; and the limb is so altered from its original shape, and so deformed, as to have more the character of an elephant's leg than that of

a human being. This resemblance is all the greater from the corrugated, rough, and discoloured appearance which the epidermis presents, and very naturally suggested to the Arabian physicians the designation *dal fil*, the elephant disease.

The European translators of the works of the Arabian physicians, ignorant of the disease of which the latter treated, inferred that the term *dal fil* was intended to signify the disease familiar to themselves, and described by the Greeks under the name of elephantiasis, and named it accordingly. Subsequent writers, however, discovered the difference of the two diseases, and distinguished them by the names of elephantiasis Arabum and elephantiasis Græcorum; and thence has resulted a considerable amount of confusion, that for a long time has complicated the history of these diseases, and is not yet entirely cleared away. We, however, diminish the difficulty very materially when we call the elephantiasis Græcorum by its proper name, LEPRO, and elephantiasis Arabum by the more appropriate name of bucnemia.

The characteristic features of bucnemia are the prodigious enlargement of the limb, due to augmented growth and infiltration into the tissues, and a coarseness and degradation of structure of the tissues themselves. The patients whom we meet with in this country suffering under the disease, are either natives of a hotter climate or have resided in those climates for a considerable time. We have, however, seen one case of this kind of hypertrophy affecting the scrotum, in a gentleman who had never left this country. Another case which invaded the entire lower extremity of one side, the limb being three times the size of that of the opposite side, was imported from Australia; and recently we have advised an English gentleman affected with this disease in the foot and lower leg, who had resided in China. The swelling began eighteen years previously, after a sprain of the ankle. It was unattended with pain, but had on two occasions been the seat of ulceration, which for the time had greatly diminished its bulk, by giving exit to the infiltrated albuminous fluid. In the cases which have come under our inspection, there has been no evidence of disease of veins or lymphatics, or any enlargement of lymphatic glands.

DIAGNOSIS.—Bucnemia when fully developed is unlike any other affection of the skin: in an incipient stage it might be

confounded with that oedematous condition of the integument and subcutaneous cellular tissue which goes by the name of "white leg," and which originates in inflammation of the veins; indeed, there is some analogy between the two diseases, and bucnemia may in its essence be a "white leg" of endemic or sporadic origin.

CAUSE.—Bucnemia must be referred to endemic or sporadic causes peculiar to hot climates, but occurring exceptionally in those of a milder temperature.

PROGNOSIS.—Our hopes of cure must be very limited; the disease is very troublesome and annoying, but not in its nature of a fatal tendency. Nevertheless, by inducing debility and exhaustion, it would eventually undermine the health.

TREATMENT.—Our experience of the disease does no more than warrant the suggestion of means founded upon general principles; for example, the iodide of potassium or ammonium, arsenic, with local pressure and position. We advised our patient, above referred to, to commence his treatment with a course of Zittmann's decoction. Some benefit might also be anticipated from a prolonged course of the bichloride of mercury. But any plan of treatment that may be determined upon must be continued steadily for a considerable length of time. Time, in this as in many other diseases, will be an important medicine in the cure.

Those prodigious enlargements of the scrotum that sometimes find their way from China into our hospitals in this country, have in several instances been submitted to the knife; and it is surprising how much the Chinese constitution will bear in the way of surgical operation.

ATROPHIC AFFECTIONS.

ATROPHIA CUTIS is a rare form of disease of the skin; it is sometimes general and sometimes partial.

When *general*, the skin becomes thinned and stretched, and seems as if it were too small for the body which it contains. The thinness and stretching are most remarkable at the apertures of the body and in the extremities; the eyelids look too small to cover the eyes: the nose is pinched; the ears curled up; the

teeth exposed by the contraction of the lips; and the cheeks are drawn against the jaws so as to produce a cadaveric expression of countenance. The skin of the neck in like manner is stretched, and the fingers and toes are shrunken, pointed, white, and not unfrequently ulcerated at the tips. The process is so gradual that the ends of the last phalanges make their appearance beyond the skin without much previous pain. The bone crumbles and comes away, and after a while a fresh piece is protruded, until an entire phalanx may be expelled through the opening. Often also the tendons contract, and the fingers are more or less bent.

The pain accompanying these pathological phenomena is generally very trivial; there is always great coldness with numbness; some degree of aching; then a little pus appears at the ends of the fingers; then a chronic ulceration of little apparent moment; and then the ragged end of the bone. These phenomena remind us very strongly of *lepra nodosa* (elephantiasis Græcorum), and suggest the idea that this curious affection may be a remnant or vestige of the ancient leprosy.

ATROPHIA CUTIS LINEARIS.—Partial atrophy of the skin generally assumes the character of a *linear atrophy*, its linear form being determined by the course of a nerve, a paralysis of which has originated the disease. We have met with several examples of this complaint, and most frequently on the forehead, where they have taken the line of one of the branches of the supraorbital nerve. The first symptom generally is a faint white line, among the borders of which the normal redness of the skin is a little increased; by degrees the white line becomes more evident, broader, and depressed, and the distinction between it and the bordering sound skin more obvious. Later, the sensibility of the affected skin is lost, the skin is withered, and a reparative process, the absorption of the damaged skin, is commenced; and as a result of the latter process, the adjoining parts of the healthy skin are drawn together, and nothing remains but a deep linear groove resembling the scar of a sword-wound.

DIAGNOSIS.—The general signs of atrophy already described distinguish this affection from the generality of cutaneous diseases; but from the atrophy which accompanies *lepra* (elephantiasis) the distinction is not so easy. Indeed we ourselves have sometimes doubted whether these affections might not be classed

with lepra anæsthetica. A similar state of the skin is occasionally seen, which is associated with a tubercular infiltration resembling that of lepra tuberculosa; and this latter we have not hesitated to group with lepra, under the designation of morphæa lardacea.

CAUSE.—Of the predisposing cause of atrophia it is difficult to make a suggestion; the general form is usually associated with an extreme state of nervous debility; and the exciting cause of the partial or linear kind is sometimes traceable to violent muscular efforts, such as accompany spasmodic sneezings and spasmodic cough.

PROGNOSIS.—The general form of atrophia cutis is grave; the constant irritation which it keeps up tends to weaken and exhaust the constitution. The linear form of atrophy is not serious, and we have seen it undergo spontaneous cure.

TREATMENT.—Atrophia cutis being more constitutional than local in its nature, that is as regards its general form, we must have recourse to tonics, and last, and often best among these, to arsenic. We repeat here what we have already said before, that arsenic is a special cutaneous tonic, and therefore a very appropriate remedy where loss of nervous power of the skin is specially concerned.

The local treatment must consist of moderate stimulant applications, such as the ceratum resinæ, or ointments containing mildly stimulant balsams. We have also found camphor cerate and a weak solution of nitrate of silver useful adjuvants. In cases of linear atrophy we have pencilled the part with the acetum cantharidis with advantage, and have applied liniments containing chloroform.

CHAPTER XII.

ALPHOUS AFFECTIONS.

ALPHOS is one of the three vitiligoid or spotted affections of **Celsus**. "It is called alphos," he says, "when it is white, rough, and dispersed, resembling drops sprinkled on the skin: sometimes the spots have greater breadth than mere drops; and are apt from time to time to enlarge their dimensions." The roughness or scabiness of the eruption gained for it the name of *lepra*,* and also of *psoriasis*. But these terms are more correctly applicable: *lepra*, to the ancient leprosy; and *psoriasis* to the dry, thickened, and squamous stage of *psora*, the modern *eczema*; and we consider it to be a mere act of justice to restore the original and very appropriate name of *alphos*, by which the disease was known to the fathers of medicine.

Alphos is an eruption of white, round, and slightly-raised spots, varying in size from two lines to an inch or two inches in diameter, symmetrically dispersed over the surface of the body, but met with especially on the elbows and knees; and sometimes forming continuous patches of irregular figure and considerable extent. The whiteness of *alphos* is due to a scale of morbid epidermis formed on the surface of the spot; its roundness and elevation are the consequence of its origin from a tubercle, or from a cluster of tubercles; and the size of the spot is dependent on the presence of a single tubercle; of a cluster; or of an aggregation of clusters of tubercles.

At its earliest appearance the pathological element of *alphos* is a small flattened papule which occupies the circumference of the mouth of the follicle; the papule is of a dull red colour and one line in diameter; and in a short time enlarges to the diameter of two, three, and four lines. Sometimes it retains the latter size permanently and constitutes the form of *alphos* termed *guttatus*; at other times the redness spreads from the base of the primary tubercle, a circle of pores around it are involved, and the tubercles developed at the apertures of these pores become fused into

* *Λεπρα*, à *λεπρος*, scaly, scabby, rough.

one continuous elevated border. The patch has now attained the diameter of five or six lines, it is circular in figure, has a rounded border which sometimes exceeds in elevation the central or primary tubercle, and has a tendency to peripheral growth: this is the circinate form of alphas; in other words, *alphos vulgaris*.

Alphas, therefore, may exist as a single tubercle; as a cluster of tubercles more or less completely fused into a single circular mass or patch, or it may present an aggregated character, and constitute a widely-spread patch composed of independent tubercles, connected by a common erythematous base; the patch being irregular in its outline, and covering a large surface, sometimes an entire limb: this is *alphos diffusus*. These differences in degree of development of the eruption have reference, doubtless, to the constitution of the patient, to the tone of the skin, or to the energy of the disease; but their chief interest consists in their being the basis upon which are founded the varieties of the disorder. An arrest of development of the eruption at the papular stage constitutes an *alphos papulosus*, a variety heretofore undescribed; its advance to the condition of an isolated tubercle is the *alphos guttatus*; a cluster of tubercles, blended into a single patch, of moderate size and circular form, is *alphos circinatus vel vulgaris*; while an aggregation of tubercles, covering a large surface, without fusion of mass, and with an irregular boundary, is *alphos diffusus*.

This eruption presents some variety in its degree of elevation; sometimes the elevation is very slight, as in *alphos papulosus*, and in a pityriasic form of the disease, occasionally met with; while in the ordinary forms the prominence of the tubercles reaches to about a line. The scale or crust also exhibits differences, both in thickness and whiteness; these properties of the scale being due to the activity of morbid cell-formation, and being greater in proportion to the degree of imperfection of the structure of the cells. The most morbid condition of the scale is evinced by a laminated and porous structure; the lesser degree of departure from the healthy standard, by the yellowish and horny foliation of ordinary epidermis. In *alphos circinatus*, which creeps on gradually by its circumference, the scale becomes imbricated, and has a very remarkable character, being dense and yellowish in the centre, and laminated and snowy towards the circumference, often assuming a frothy lightness of

appearance with a silvery brilliancy. In *alphos guttatus* the scale forms a little white cap to each of the tubercles; and the scales of *alphos diffusus* are an aggregation of crusts of this smaller kind, accumulated often in astonishing numbers.

When *alphos* is in process of cure, the tubercles subside; in the guttated variety they sink in mass to the level of the skin; in the diffused kind, they sink here and there in the midst of the irregular patch, and form so many clearings, which go on enlarging in dimensions until the patch is wholly removed. The mode of disappearance of the circinate kind is, however, more peculiar; the patch subsides in the centre where the skin is restored to its normal state, while it runs on by the circumference, and so forms a ring of variable size. Then the ring gives way, and the patch is reduced to one, two, or more segments of the original circle. When two rings join by their circumference they form a figure of 8; and when several rings are thus connected in the state of dispersion, they give rise to a variety of irregular figures, which have suggested the term *alphos gyratus*.

Alphos has no constitutional symptoms, and scarcely any local symptoms. It is consistent with the most perfect health of the individual; but as the sufferers from *alphos* are not protected from other diseases, the eruption may be rendered irritable, and become inflamed from the presence of different disorders; for example, gout or eczema. In gouty persons *alphos* will frequently become red, tumid, and excessively itchy;—*alphos erythematousus*. And in eczematous subjects the eruption may become the seat of eczematous congestion, and assume the characters of the fissured, the ichorous, and the encrusted forms of eczema. These symptoms, however, must not be regarded as belonging to *alphos*, but as being the appurtenance of the disorder by which it is complicated. *Alphos* generally gives rise to no inconvenience whatever beyond the vexation of its appearance, and occasionally to some little itching arising from the accumulation of the scales upon the skin; the itching being apt to be increased by the warmth of the body, and particularly by the heat of exercise.

When *alphos* disappears from the skin, it not unfrequently leaves melasmic stains on the spots occupied by the patches; and at other times the skin around has become darkened, while the

seat of the patches is bleached. This melasmic discoloration is usually attributed to the stimulant action upon the skin of the arsenic used in the treatment of the disease; and in many instances, no doubt, this explanation is correct. It is evidently so in the case of diffused melasma with bleached patches; but we have noted cases in which melasmic stains were present, and where no arsenic had ever been administered. In these latter cases the congestive energy of the skin had supplied the place of the stimulus attributed in other instances to arsenical action.

The principal varieties of alphas are three in number, namely :

Alphos circinatus,
Alphos guttatus,
Alphos diffusus.

To which may be added as accidental forms, *alphos papulosus*, *alphos pityriasicus*, and *alphos gyratus*; and certain local forms; for example, *alphos capitis*, *alphos faciei*, and *alphos articularum*.

ALPHOS CIRCINATUS VEL VULGARIS, the *lepra vulgaris* of Willan, and the *psoriasis vulgaris* of most modern authors, is the common form of the disease. The patches are developed in the semblance of circular disks, of an average diameter of one inch; they enlarge by the circumference, and in process of cure subside at the centre, and are converted into rings. *Alphos circinatus* is the most strikingly-marked form of the disease; in it the circular figure, the depressed centre, the raised border, and the laminated and porous scale are best exhibited. It is met with on the fleshy parts of the body, as of the trunk and limbs; and on the elbows and knees, where it is constantly present, it loses its circular figure, and becomes irregular and diffused.

ALPHOS GUTTATUS, the *lepra alphoides* of Willan, is rare as compared with *alphos circinatus*; it presents the tubercular type of the disease in a persistent form, has a thinner and less artificially developed scale than the preceding, and no tendency to grow by the circumference and subside by the centre; on the contrary, its summit is always the most prominent part of the eruption, and the average diameter of its tubercle, two lines.

Alphos guttatus is commonly intermingled with patches, com-

posed of several tubercles, which approach in size the smaller disks of *alphos circinatus*; it is for the most part dispersed over the trunk of the body, and sometimes on the limbs. If there be any eruption present on the elbows and knees, it presents the diffused character, as in *alphos circinatus*.

ALPHOS DIFFUSUS is the *lepra inveterata* of Willan, and is remarkable for the large size of its patches, often covering an entire limb; and for an obstinacy of character which has gained for it the title of *inveterata*. Unlike *alphos circinatus*, it has no tendency to circularity of form; while in structure it consists of a multitude of the typical tubercles of *alphos* closely assembled together, sometimes touching, and frequently blending by their bases. The scales of *alphos diffusus* often attain considerable thickness, and fall in a shower when the eruption is brushed by the hand. This form of the disease is more frequently complicated with bleeding cracks and fissures, and also with *eczema*, than the other varieties.

On the convexities of the elbows and knees *alphos* commonly assumes the diffused form, although the general form as developed elsewhere may be circinate or guttate.

ALPHOS PAPULOSUS, although heretofore undescribed, is fully as common as *alphos guttatus*. It is *alphos* arrested at its papular stage, when it exists as a crop of flat papules developed at the apertures of the pores of the skin. The papules have a dull red colour, are flat on the summit, very little raised, and glazed on the surface by a layer of transparent and horny cuticle. They are unlike the papules of lichen, though scarcely larger, have a square base, and are chiefly developed in the neighbourhood of joints and on the abdomen.

ALPHOS PITYRIASICUS, like *alphos papulosus*, is an imperfectly developed form of the eruption, in which the elevation and thickening of the skin are absent, and the squamæ small and imperfect. Such cases must be regarded as presenting an aberration from the natural standard; but they are not very uncommon.

ALPHOS GYRATUS, as we have already described, is an accidental combination of the rings of *alphos circinatus*, sometimes observed during the dispersion of the eruption. The disorder never begins in a gyrated form.

ALPHOS CAPITIS.—*Alphos* is not unfrequently met with on

the hairy scalp, and covers the head more or less extensively, showing a red margin along the forehead and temples. It commonly presents the diffused form; the scalp is thickened, very itchy, and throws off an abundance of white scales. *Alphos capitis* rarely exists independently of the presence of the eruption on other parts, particularly on the elbows and knees; but the general eruption may be insignificant as compared with that of the head.

ALPHOS FACIEL.—As a general rule, it may be said that *alphos* never occurs upon the face; but there are occasional exceptions, and the above designation is intended to record the exception. On the face the patches are usually flat and very little raised, and often present the characters of *alphos pityriasis*. It is always associated with patches of eruption occurring on other parts of the body.

ALPHOS MANUUM indicates another exceptional seat of the eruption—the back of the hands. We have also seen it once or twice on the palm of the hands. In this, as in the generality of the varieties, the eruption is also met with elsewhere, and notably on the elbows and knees.

ALPHOS UNGUIUM illustrates a more common seat of the disease—namely, the matrix of the nail, where it destroys the normal secretion and growth of the nail, causes its separation from the derma, and subsequent fall. We have a patient under our care (a young lady) who, besides general *alphos*, also suffers with *alphos faciei*, *dorsi manuum*, et *unguium*; the existence of *alphos* of the nails must generally be regarded as a serious aggravation of the affection, and indicates an obstinate form of the disease.

ALPHOS ARTICULORUM reminds us of the special propensity of this eruption to attack the convex side of the elbows and knees. It is very rarely absent from these regions when it exists elsewhere, and not uncommonly it lingers on them when it has disappeared from the rest of the skin, or it is sometimes limited to these joints and has never appeared on any other part.

Willan describes a *lepra nigricans*, which seems to be nothing more than a lividity of colour of *alphos circinatus*, due to cachexia; it is also probable that some forms of centrifugal syphilitic tubercle have been included under this head. At the

est, it is a mere alteration in the colour of the eruption, without any difference of pathological structure, and we have therefore thought it well to omit it from consideration as a variety of the disease.

A *lepra syphilitica*, the synonym of alphos syphiliticus, has also been described; but the term is incorrect; alphos is essentially distinct in its nature and manifestation from tubercular syphiloderma, to which the above name has been applied. The error has arisen from a similarity of appearance, syphiloderma often presents a tubercular character, spreading by its circumference, subsiding in the centre, and covered by a thickened epidermis in the state of desquamation; but the antecedents and accompanying features of the disease are essentially different.

DIAGNOSIS.—Alphos is distinguished from other cutaneous diseases by its white, roof-like, porous, and often laminated scale, surmounting a dull red tubercular base. The only eruption with which it can be confounded is a tubercular and non-ulcerative form of syphiloderma. In a case of doubt we may be guided to the truth by the constitutional condition of the patient; if the eruption be syphilitic, there will have existed some foregone symptoms of that disease, and the patches on the elbows and knees, so characteristic of alphos, will be absent. We shall also derive help from a remembrance of the symmetrical distribution of alphos, and from a knowledge of the duration of the disease. Syphiloderma is chronic, lasting for several months, but alphos exceeds every other known disease of the cutaneous tissues in chronicity. Forty-two out of one hundred cases of alphos, nearly one-half, have been in existence more than ten years; twenty-eight had lasted between ten and twenty years, and fourteen between twenty years and fifty-seven.

CAUSE.—Alphos is due to an innate tendency or diathesis; and the diathesis in many instances is hereditary. It occurs pretty equally in males and females; and is met with at all periods of life, from the age of three to eighty years. In its origin it is most frequent at puberty, twenty-three in one hundred cases beginning between ten and sixteen; and it is remarkable, that in examples of heredity, where the children are numerous, ranging from four to ten in one family, the number afflicted with this disease rarely exceeds two; in three families of ten each, the number of children attacked with alphos was three in one, and

two in the others; while in three families of six and seven children, only one in each was the subject of this disease. In reference to predisposing causes, we have little evidence; four examples in one hundred cases were traceable to a consumptive stock; two to a gouty source; and one to the marriage of near relations; while in the same number, the exciting causes, arranged in order of frequency, were as follows:—rubeola, scarlatina, parturition, over-study, over-nursing, development of menses, bad or insufficient diet, rapid growth, exposure to cold while heated, climate, fever, anæmia, cessation of menses, overheating the body, sea-bathing, and debility caused by syphilis. It is curious, however, to note, that one case was cured by an attack of measles. Alphas is greatly influenced by seasons, being worst in the winter, and clearing away in the summer; it commonly begins to appear or increase in the autumn; but exceptional cases are occasionally met with, wherein the eruption is worst in the spring and summer.

PROGNOSIS.—The prognostics as to cure are most unsatisfactory. Alphas may disappear after a few years, but it is equally likely to last a lifetime; and no difference is perceivable whether the disease be independent or hereditary in its origin; the only thing that can be said in its favour being, that it does not affect the health, but only the comfort of the patient.

TREATMENT.—In simple or uncomplicated alphas, there is commonly no question of regulating the digestive organs and general health; the specific treatment may be commenced at once, and the one reliable remedy is arsenic. Where, however, there is any disturbance of the health, or any complication such as gout or eczema, the complication must be removed in the first instance, before the specific treatment is begun. It will usually be found that with the removal of the complication the eruption will be benefited, and the patient may be led to hope that the eruption is in process of cure; but the physician knows full well to what the improvement is due, and does not permit himself to be so easily deceived.

The best form for the administration of arsenic is the liquor potassæ arsenitis, or Fowler's solution. Another good form is that of De Valangin, the liquor arsenici chloridi; and occasionally, we may have recourse to Donovan's solution, the liquor hydropotissæ hydrargyri et arsenici. Commencing with the first,

We may prescribe a mixture which we believe cannot be excelled, as follows:—*R. vini ferri*, $\bar{5}$ iss. ; *syrupi simplicis*, 3 ij. ; *liquoris Fowleri*, 3 ij. ; *aquæ puræ*, $\bar{5}$ ij. ; the dose to be one drachm, three times a day, and taken in the middle of a meal. The patient should be furnished with a minim measure, and after measuring the dose, he should drink it pure, out of the measure. The reasons for these instructions are, that where a medicine is to be taken for many months, and three times every day, it is important that it should be as agreeable in taste as possible ; and also that it should be administered in the smallest dose practicable ; again, a small quantity is less likely to nauseate the stomach than a larger one. Secondly, by taking the dose in the middle of the meal, it is secured a more thorough admixture with the food ; and it is less likely to be brought into direct contact with the mucous surface. We may add, that the experience of many years has convinced us that this is the best, and therefore, the only method according to which this very important remedy should be used.

It will be observed that one drachm of the above mixture contains four minims of Fowler's solution : we might prefer to begin with a smaller dose, two or three minims : this is effected by regulating the relative proportions of the arsenical solution and syrup ; to give two minims to the dose, the former should be one drachm, the latter three drachms ; and in like manner for three minims or five minims ; the first and the last of the ingredients always remaining the same. We should give a small dose at first, to test the susceptibility of the patient to our remedy ; and if we find no inconvenience to result, we can raise it by degrees ; but in no instance will it be found necessary to increase the dose beyond five minims. We believe that arsenic operates its healing effects by time, rather than by quantity ; at any rate it is clear, that in the treatment of alphos it must have time, and if we nauseate the stomach by too large doses given at first, we frustrate our own intentions, namely, of applying a chronic remedy to the cure of a chronic disease. If a stomach be intolerant of arsenic, it is shown at the commencement of treatment, and then we must diminish our dose or suspend our treatment for a while ; where there is no intolerance of the remedy, but where, after a time, say several weeks, it shows signs of disturbing the functions of the stomach or of the nervous system, a

state usually referred to the cumulative effects of arsenic, we must again suspend our treatment, for a week or longer if necessary. We commonly anticipate this possibility by commanding our patient to desist immediately from the use of the remedy if it seem to disagree in any manner whatever. The importance of these remarks will be the better understood when the student is reminded that the patient may require to continue the remedy steadily and daily for a period of three, six, or nine months, and even longer. Hence our care in the combination of the medicine, and in the regulation and administration of the dose.

Possibly we may wish to make a change in our remedy; one form or combination of remedy may suit the stomach better than another form; or it may be desirable for the sake of change, for change is an important feature in the use of medicines, and then we may select the acid solution of arsenic, the *solutio solventis mineralis* of De Valangin, as follows:—*R. liquoris arsenici chloridi*, 3 iv.; *acidi hydrochlorici diluti*, 3 j.; *syrupi simplicis*, 3 iij.; *aquæ*, 3 iij. Here then is a mixture of the same strength as the ferro-arsenical medicine, which may be administered in the same way, or with the addition of a little water to subdue the acidity; but in every other respect after the same method, and with the same precautions. We have seen a case of alphas cleared by the acid solution, which has proved rebellious to the alkaline solution, but, as far as we know, it is not on the whole so reliable a remedy as Fowler's solution.

Where there exists chronic disorder of the digestive organs; at or after the mid period of life; where there are signs of torpid liver and inactive nutrition; we may find an useful remedy in Donovan's solution, and we would recommend as a formula: *R. liquoris hydriodatis hydrargyri et arsenici*, 3 j.; *syrupi simplicis*, 3 iij.; a drachm in one ounce of water, for a dose; to be taken three times a day, half an hour after meals.

Other remedies, all of inferior character to the preceding, have been recommended by different authors from time to time; for example, the *pix liquida*, in the form of pills; tar in capsules, and tar-water; *liquor potassæ*, in half-drachm doses three times a day; *tinctura lyttæ*; and various vegetable decoctions, of which the most important is the *decoctum dulcamaræ*. We sometimes combine the *tinctura lyttæ* with Fowler's solution in equal doses, and with very good effect.

The local treatment of alphos is founded on the idea of modifying the morbid action in the skin, and removing the scales. The remedies the best suited to this purpose are pitch and tar in the form of ointment and soap, sometimes alone, and sometimes in combination with sulphur, or with one of the salts of mercury. The unguentum picis liquidæ, or unguentum juniperi pyrolignici, should be well rubbed into the eruption at night, and thoroughly washed off in the morning with soap; or the juniper-tar soap may be well rubbed into the eruption at night, allowed to dry upon the part, and washed off in the morning; or the tar-liniment may be used; *e. g.*, olei juniperi pyrolignici; saponis mollis; alcoholis, aa $\frac{3}{4}$ j.; aquæ $\frac{3}{4}$ v. If these remedies create tenderness, the spots should be moistened after the morning ablution with the benzoated ointment of oxide of zinc, or with glycerole.

In alphos capitis the scalp should be thoroughly washed daily with the juniper-tar soap, and afterwards anointed with the nitric-oxide of mercury ointment, three parts diluted. The same ointment, or the white precipitate ointment, is well adapted for alphos diffusus on the body or limbs; or a glycerole containing two grains of the bichloride of mercury to the ounce. For spots on the face, the best local application is the bichloride of mercury in emulsion of bitter almonds, one grain to the ounce.

CHAPTER XIII.

STRUMOUS AFFECTIONS.

STRUMA, or scrofula, presents itself in the skin in two forms—either as simple scrofuloderma or ulceration of the skin, consequent upon inflammation and hypertrophy of lymphatic glands, subcutaneous abscess, or disease of a bone; or as a primary disease of the cutaneous tissue,—namely, *lupus*.

SCROFULODERMA is especially remarkable for its chronic character, arising out of the lowered vitality of the morbid tissues; the edges of the ulcers are thin, often undermined, and wanting in granulations, or studded with granulations that are pale, tumid, and flabby, and bleed upon slight injury. Moreover, there is commonly an absence of purulent secretion, the discharges being ichorous or sanious, and more or less intermingled with small flakes of disorganized tissue. Sometimes there is only one opening, through the skin, the edges of which have the appearance and hardness of a cicatrix; at other times the diseased surface is honeycombed with apertures, from all of which there is an oozing of unhealthy and often foetid discharge.

The ulcers of scrofuloderma are apt to creep along the surface, sometimes healing in the part first affected, and slowly attacking a neighbouring sound part. On the healed part they leave a white or purplish cicatrix, sometimes callous, sometimes thin and transparent, sometimes roughened by the growth of granulations or tubercles of skin, and sometimes rendered prominent by the morbid growth of the white fibrous tissue of the corium, constituting a traumatic kelis.

The situations most commonly affected by scrofuloderma are the submaxillary and submental region of the neck, the dorsum of the hands, and the dorsum of the feet and toes; it also occurs, but less frequently, on the legs and arms, and sometimes in front of the ear, and in the loins. On the feet it is more than usually obstinate, lasting for many years, and often causing adhesion of two or more of the toes; sometimes it attacks only a single foot, and then, from want of use, the foot becomes dwindled in size.

LUPUS.

LUPUS is so named from its destructive qualities ; it is destructive in all its forms ; but as in its destructive action there are three well-defined degrees, these degrees serve as the foundation of its three varieties, which are as follows :—

Lupus exedens,
Lupus non exedens,
Lupus erythematosus.

LUPUS EXEDENS, the most destructive of the three varieties, attacks principally the nose, and begins either in the skin or in the mucous membrane. When it invades the skin, it may begin at the tip or ala of the nose, or at the side of the organ ; or it may make its commencement in the mucous membrane of the nostril or of the lachrymal duct. In its origin it is a tubercle which retains for awhile its tubercular form and then ulcerates, sometimes quickly, more frequently slowly. The presence of the tubercle, and especially of an ulcer, causes redness, swelling, and hardness of the adjacent tissues ; the redness is dull, and sometimes livid ; and the pain aching, gnawing, or throbbing, but not very severe. For a long time after its commencement the tubercle is covered with a thin brown crust ; from time to time a little discharge takes place at the edge of this crust, but the crust remains undetached, and is closely adherent for the greater part of its circumference. In this smouldering state the disease may continue for several weeks or months ; at last the ulceration extends beyond the limits of the crust, and then the nature of the disease becomes apparent. If the crust be raised, the ulcer will be found to be deep, with vertical edges and uneven granular surface, sometimes secreting a dense white pus and sometimes a sanious fluid. From time to time, and without apparent cause, the ulcer becomes inflamed, and the tissues at its base congested and hard ; and in a short time the hard and congested tissues are destroyed by the ulceration. This is the course of the disease ; the primary tubercle distended by congestion and infiltration, ulcerates for relief ; the congestion and infiltration are repeated from time to time, each time followed by ulceration, and so by degrees, sometimes slow and sometimes rapid (lupus vorax), tissue after tissue is destroyed

until the entire nose may be removed ; or the nose and adjacent skin of the face, including the upper lip and deeper parts. In a case lately brought before us, the interior of the face was converted into one large cavern, communicating with the exterior by means of a single vertical hole which extended from the lower jaw to the forehead ; and through this large hole could be seen the lateral walls of the nares and the pharynx, the palate and the roof of the mouth being entirely destroyed.

LUPUS NON EXEDENS is less destructive and therefore more lasting than *lupus exedens* ; it is unattended with ulceration, and its situation is somewhat different, beginning on the cheek, on the upper lip, or on the lobe of the ear, and occasionally on the ala nasi, and spreading, not in depth, like the former variety, but along the surface. It originates as a small tubercle of a reddish yellow, or pale amber colour, and has the appearance of a drop of jelly effused beneath the cuticle. It is obvious that the papillary layer of the skin is disorganized, and converted into a tissue of low organization, a kind of hyaline tissue ; there is no inflammation, no redness around the tubercle, and a few minute vessels may be seen straggling through it, or over its surface.

This is the first beginning of *lupus non exedens*, and in this shape it may often be seen in the very centre of the blooming cheek of a young girl ; a few weeks later, two or three yellowish points may be observed around the original tubercle ; these increase slowly, or, perhaps the change is more quickly effected and an uniform patch of slight elevation is formed by the blending of the tubercles, and the patch may go on increasing until it covers the greater part of the cheek. There is still the same reddish-yellow or pale amber tint of colour ; still the same evidence of an apparently gelatinized tissue in place of the natural papillary surface of the derma ; still the minute vessels straggling through the transparent tissue ; still the absence of vascular congestion, either in the patch or around its circumference. We have before us one of those curious transformations due to lowered vitality of tissue ; a highly organized structure, the papillary surface of the derma, converted into a non-vascular gelatinous stratum, and in a state to be absorbed and removed like an effete material. But the vitality of the skin is unequal to the exertion of removing the disorganized tissue, and so it

remains; occasionally, however, it is removed spontaneously, and then we have proof of the nature of the disease; the papillary layer of the derma is gone, the fibrous structure of the corium is brought into view, and remains as a cicatrix for ever after. Here then is a cicatrix, permanent for life, on a spot where there has been no lesion of continuity, not even an abrasion of the cuticle. This is the first time that we have seen this curious phenomenon in our present travels along the pathway of cutaneous medicine; but we shall meet with it again.

But as in healthy so in morbid processes, nature is not always regular in her course. Sometimes a patch of large size is found which presents uniformly the structure already described; sometimes the morbid structure is removed by absorption at the centre of the patch, and the border stretches further and further upon the sound skin by its circumference; sometimes, the patch breaks up in parts, the tubercles subside here and there, clear spaces are formed in portions of the patch, and tubercles are scattered irregularly over the rest of the surface; sometimes the tubercular origin of the disease is manifest throughout its entire course, and sometimes it is entirely lost. *Lupus non exedens* is accompanied with little pain, sometimes none; sometimes there is a sense of pricking, and sometimes of itching. Commonly there is a slight degree of exfoliation of the cuticle, and sometimes, but rarely, the cuticle gives way along the prominent edges, and there results a little oozing of an ichorous fluid, and a consequent thin brown crust.

The disease is very chronic in its nature, lasting for many years, and sometimes for life. It increases by extension to the surrounding healthy skin, but it is also capable of reproduction through the areolar spaces of the fibrous tissue of the corium; and when it has been removed by a caustic application, it is apt after a while to show itself anew in these spaces, and throw up fresh tubercles.

Beginning by a single tubercle, or by a small cluster of tubercles, *lupus non exedens* will often spread over the whole of one side of the face and part of the other, including the nose in its course; and the loss of tissue which it occasions and the permanent cicatrix which it leaves behind give rise to considerable deformity; the alæ of the nose are drawn up as if by ulceration; the point of the nose is sharpened; the upper lip is

shortened so as to bring the teeth into view; and the lower lids are pulled down so as to expose more of the globes of the eye than natural.

Occasionally we meet with blotches of *lupus non exedens* on other parts of the body than the face; for example, on the arms or on the trunk of the body; and where the patches have been treated by poultice or water-dressing, it is not uncommon to find them complicated by a muco-purulent discharge, sometimes in considerable quantity, and without abrasion of the cuticle. But if the improper dressing be laid aside, the patch will recover its previous dry and tubercular character.

LUPUS ERYTHEMATOSUS is an erythematous redness of the skin occurring in patches of small size, usually on the face; lasting for a long period without change, and terminating in a dry sordid and atrophied surface, or in a white depressed cicatrix. *Lupus erythematosus* is sometimes seen associated with *lupus non exedens* as a sequel of that complaint.

The disease is commonly met with on the nose, the cheeks, the upper lip, or the scalp; it appears as a patch of irregular figure but well-defined redness; the centre of the patch being coated over with a dry sordid cuticle, slightly depressed, and the follicles filled with horny exuviae; at a first glance the patch appears trifling; its stationary habit and resistance of treatment excite suspicion that it is something more than common erythema; its disposition to occasion atrophy of the skin proves it to be more serious in its nature, and when it fortunately disappears spontaneously, the white cicatrix indicating the removal of the papillary layer of the derma, or on the scalp the destruction of the hair-follicles, declares its relation to the family of *lupus*. It is a chronic and very troublesome disease, and is sometimes incurable.

Associated with *lupus erythematosus* of the face, we not unfrequently meet with similar spots on the fingers; in the latter situation they have somewhat the appearance of chilblains, and are commonly mistaken for them; but their persistence through the summer as well as the winter, the white dry cuticle which covers their surface, the central depression, and frequently the atrophy of the portion of the skin attacked, indicate their real nature.

DIAGNOSIS.—*Scrofuloderma* may be mistaken for *syphiloderma*,

and in forming our diagnosis we must be guided by the strumous constitution or descent, together with the age of the patient, and the ordinary signs of struma; for example, the clear anæmic skin, blue eyes, thick lips, and enlargement of lymphatic glands. The experienced physician detects these signs at a glance, and is not likely to be deceived. Occasionally it is not easy to draw the line between simple scrofuloderma and lupus non exedens; and it is far from being uncommon to find the former merge into the latter at the expiration of several years; the period of abscess and ulceration belongs to scrofuloderma; the tubercular and non-ulcerate period to lupus non exedens.

The diseases likely to be mistaken for lupus exedens are tubercular and ulcerative syphiloderma and carcinoma; the resemblance between lupus exedens and some forms of syphilis is so close that one of the varieties of the latter has received the objectionable name of lupus syphiliticus. It is desirable to avoid confusion between these important diseases, as the treatment suitable for the one would do injury to the other. Our diagnosis must be founded upon the general history of the case rather than upon apparently distinctive appearances; the former is certain ground, the latter may be delusive, and the difficulty can only arise when the disease is limited to the point of the nose or the edge of the nostril. If there exist eruption in other parts of the body; if there be evidence of the previous existence of eruption elsewhere, or any of concomitant signs of syphilis, we may easily decide the question; while the associated symptoms of lupus are, struma or strumous parentage, or the development of the disease at an early period of life. Cancer (epithelioma) commences in a sebiparous gland, is slower in its progress, attended with less congestion and swelling than lupus, and presents a peculiarly transparent and hardened border around its circumference.

Lupus non exedens, particularly of the face of young persons, whom it usually attacks, is unmistakeable; on the limbs and trunk of the body it may be taken for tubercular syphiloderma or alphas. Youth, the presence of a strumous diathesis, and the absence of sore throat and other signs of syphilis, decide the question in favour of lupus. We have seen lupus non exedens on the limbs, occurring in circular patches of about an inch in diameter, strangely like alphas in appearance; but the origin

was different,—a pustule or small abscess; and if a portion of the patch have undergone spontaneous cure, there will be the decisive evidence of a cicatrix in lupus and the absence of a morbid alteration of the skin in alphas.

Lupus erythematosus is distinguished from all other affections of the skin by its maintenance of a circumscribed erythematous form; its obstinate persistence; the atrophy of the surface of the skin that ensues; its sordid appearance; and the presence of permanent cicatrix in parts that have healed. It is comparatively a rare affection.

CAUSE.—The cause of scrofuloderma and lupus is the strumous diathesis, whether hereditary or accidental.

PROGNOSIS.—Scrofuloderma and lupus are remarkable for their obstinacy, frequently resisting treatment, and lasting many years, or for life; and even when the sequel is favourable, leaving behind them indelible cicatrices, and often considerable deformity, as where the face and nose are attacked and the latter more or less destroyed by absorption or ulceration.

TREATMENT.—In strumous affections in general, great attention must be paid to diet. There is commonly weak nutritive power and defective assimilation and sanguification; hence our patients are fair in complexion, pallid, flabby in tissue, and more or less anæmic. The diet should consist of one-half or two-thirds animal food. Animal food should be taken at each meal, and with the addition at dinner and supper of beer, either ale or porter, according to the taste of the patient. In these disorders occurring in children, there is advantage also in mingling a few grains of phosphate of lime with each meal.

The medicines especially applicable to strumous affections are cod-liver oil, iodine, and iron; and these specific anti-scrofulous remedies may be combined with ordinary tonics, namely, vegetable bitters, cinchona, or quinine. In children the superphosphate of iron is especially valuable, and both in children and adults the syrup of the iodide of iron will be found of great service.

In all the forms of lupus it is important to regulate the functions of digestion and the secretions of the patient, and afterwards make our way through the ordinary tonics to the specific tonics; in other words, to put our patient in the best possible health, and by every means in our power, conjointly with the

local treatment. By this process we give our local treatment a better chance of a certain and speedy success. We must maintain and support the vital power of the patient as much as possible, for our contention is against a debilitated constitution.

The local treatment of scrofuloderma must be stimulant in various degrees, according to the form of the disease; while water-dressings and poultices must be looked upon with great suspicion, as generally doing much more harm than good, by increasing the local debility of tissues already seriously weakened. Scrofuloderma in an ulcerating and fistulous state may be treated with the unguentum resinæ flavæ, diluted to suit the sensations of the patient, or the unguentum picis liquidæ, or the unguentum picis juniperi; the unguentum elemi is also an useful ointment; or if we need milder applications, we may have recourse to the benzoated oxide of zinc ointment, or unguentum calaminæ. The liquor plumbi diacetatis, pencilled on the tender skin, is sometimes useful; and when the ulceration is healed, the juniper tar liniment, or balsam of Peru, will be found of service in strengthening and hardening the skin. Where tuberculous growths are to be absorbed or enlarged glands to be reduced, the compound tincture of iodine may be painted on the part.

In lupus exedens the morbid tissue of the ulcer must be destroyed, and the condensed and infiltrated tissues unloaded by means of a free application of nitrate of silver, or, better still, a solution of equal parts of potassa fusa and water. After the operation the part may be dressed with the unguentum resinæ diluted one-half, or with the benzoated ointment of oxide of zinc.

In lupus non exedens the patch of morbid tissue, or the tubercles both primary and secondary, must be destroyed by the application of the solution of caustic potash (equal parts); after the application no dressing is required; and when the crust falls, the caustic should be repeated until the disease is entirely removed. When the diseased surface is extensive and the caustic can only be applied to a part of the eruption, the remaining portion should be kept washed night and morning with the juniper tar soap, and afterwards anointed with the benzoated ointment of oxide of zinc, or with glycerole containing one drachm of the oleum juniperi pyrolignici, or two grains of the bichloride of mercury to the ounce.

Lupus erythematosus is best treated in the same manner as lupus non exedens, with the caustic potash solution. Other remedies have been recommended, such as a concentrated solution of iodine in glycerine, the compound tincture of iodine of double strength, the biniodide and the chloriodide of mercury ointment, &c.; but we give the preference to the treatment as described.

CHAPTER XIV.

CARCINOMATOUS AFFECTIONS.

CARCINOMA of the skin is apt to occur upon the face in the form of a small tubercle, and for the most part after the middle period of life. The tubercle is solitary, gives rise to little or no uneasiness, is slow in its progress, and persists for several years without attracting attention. When ulceration begins, the process is equally torpid, but occasionally, and in an irritable state of constitution, may take on a more rapid action, and give rise to considerable destruction.

The tubercle at the beginning is round or lobulated, about one line in height and two in diameter; it is hard, semi-transparent, colourless, or yellowish and sometimes bluish, and streaked by a straggling network of small veins. It grows by the increase of its circumference, the border being more or less lobulated, and the centre somewhat depressed, and reaches a diameter of four to six lines, and sometimes one or two inches. By degrees a thin scale is produced over the central depression, one or two fissures are formed in the centre of the mass, an oozing of a colourless or semi-purulent ichor takes place, and the scale is converted into a scab or crust, sometimes brownish in colour, and sometimes, from an oozing of blood, almost black. At this period the tubercle is generally circular in figure, has a raised, lobulated, and semi-transparent border, streaked by venules, with a central dark-coloured or black scab, that looks like the lid of a cavity or like an eschar.

Ulceration is now established, but proceeds slowly, and is very imperfect; it is a softening and breaking up of the centre that takes place, rather than absorption. The discharge increases, although still small in quantity; it is ichorous or semi-purulent, and sometimes sanguinolent; it forms by concretion and desiccation a thicker and harder crust, and on the removal of the crust a deep hollow is found, which is bounded by a vertical edge, that is sometimes excavated at its base, and sometimes everted. The floor of the cavity is uneven; it is

composed of red, tumid, and bleeding granulations, which sometimes assume a fungous character, and sometimes rise in the centre above the level of the surrounding surface.

There is but little pain accompanying the progress of the disease; sometimes there is itching, which leads the patient to loosen the crust with his nail; sometimes there may be throbbing or darting, but commonly the local suffering is confined to a feeling of numbness, heaviness, or dull aching. These symptoms are increased if there be any derangement of digestion; and they are apt to be augmented by any constitutional disturbance of the economy, such as an attack of gout. When the disease takes on a more active character, it may become very painful, from involving deeper structures than the skin, and may destroy a surface of considerable extent. We have lately seen a case in which the greater part of the nose was destroyed; in another the external ear is almost entirely removed; while in a third instance we have seen the whole of the lower lid a part of the integument of the cheek swept completely away.

Carcinoma cutis is a more frequent affection than might first sight be imagined. In two thousand cases of cutaneous disease it occurred eleven times, in other words, somewhat more than one-half per cent., or one in every two hundred. In twenty cases it was more than twice as frequent in males than in females; in two-thirds of that number it occurred after the age of fifty several of the patients being above sixty; and its general duration at the time of coming under treatment ranged between two and fifteen years.

In all the twenty cases the disease manifested itself on the face or its immediate neighbourhood; in nine, it appeared upon the cheek; in eight, upon the nose; while in one case it was developed on the eyebrow near its outer extremity; in another, on the temple, and in a third, upon the mastoid process. When it is formed on the side of the bridge of the nose, it is apt to creep towards the angle of the eye; near the ear it moves backwards; and in an instance before us, has destroyed the whole of the pinna, with the exception of the upper rim.

Commonly there is very little disturbance of the general health in this disease; sometimes we have noted cachexia, anæmia, debility, weak heart, and on several occasions an unhealthy

condition of the skin of the face, which was dry, thin, wrinkled, sordid, and seemingly withered.

The form of carcinoma cutis now described has its origin in a sebiparous gland; it is, in fact, an epithelial cancer, or epithelioma, originating in one of these glands, conjoined with a propagation of the disease to surrounding glands. This idea of the pathology of the disease serves to explain the extreme tardiness of its course at first, when one only, or a small group of glands are attacked, and its subsequent more rapid progress, when it takes in the circle of glands which immediately border its circumference. The glandular origin and seat of the complaint also serve to explain the limitation of the disease to the gland-bearing portion of the skin.

DIAGNOSIS.—The carcinomatous tubercle might be mistaken for a wart or for a mole; but a careful inspection discovers the disorganization of the mass, even before ulceration has commenced; in an ulcerated state it soon betrays its malignant nature. It might also be taken for an enlarged sebiparous gland, and its scab for a mass of concreted and discoloured sebaceous substance. When the morbid action has sunk into the deeper tissues of the skin, the affected integument is remarkable for its hardness.

CAUSE.—Carcinoma, like alphas and scrofuloderma, takes its origin in a *diathesis*, and not in a blood-poison, like the zymotic and syphilitic affections. Alphas and struma are hereditary; carcinoma may be the same; but our knowledge of the precise cause of carcinoma amounts really to nothing. It is an indication of degeneration of the organic tissues, and is therefore very commonly associated with mal-assimilation, defective nutrition, and cachexia.

PROGNOSIS.—Carcinoma of the skin is more under our control than a similar affection of the deeper tissues, and, if taken early, may be effectually and radically removed. It is altogether superficial at first, and seemingly perfectly local, exhibiting no tendency to produce hypertrophy of neighbouring lymphatic glands, nor any general disorder of the constitution. An unfavourable sign is a hardening of the subcutaneous tissues and the implication of cartilage in the disease.

TREATMENT.—The carcinomatous tubercle should be destroyed as early as possible by caustic, and the same remedy is equally

applicable to its ulcerated condition. We sometimes use caustic potash, sometimes nitric acid, and sometimes the chloride of zinc; but we prefer the two former, in consequence of their being the least painful. A fragment of potassa fusa pressed into the centre of a tubercle of moderate size very soon disorganizes it throughout; the disorganized mass dries into a crust; and when the crust falls, at the end of about twenty days, the skin will be found healed and the tubercle gone, leaving a very unimportant cicatrix. If the tubercle be not wholly removed, the operation must be repeated; or if, at a later period, there should be any threatening of a return of the disease, then also the caustic should be reapplied. When the disease has the form of an ulcer, and, particularly of any magnitude, it is better to apply a solution of equal parts of caustic potash and water by means of a sponge-brush. Formerly we gave a preference to the nitric acid, but we are now strongly in favour of the potassa fusa, on account of the rapidity of its action, the speedier cessation of pain, and the absence of obscuration, which is associated with the use of other caustics. When nitric acid is selected, it should be mixed with sublimed sulphur to the consistence of paste, and applied somewhat thickly by means of a slip of wood; the sulphur incorporates itself with the scab, and the latter falls off in about the same time as that produced by the potassa fusa. The chloride of zinc may be applied in its deliquescent state by the aid of a camel's-hair brush, and afterwards dressed with dry lint. The other caustics require no dressing, and no further local interference until the crust falls.

CHAPTER XV.

ZYMOTIC AFFECTIONS.

ZYMOTIC AFFECTIONS of the skin are eruptions originating in the presence in the blood of an organic poison, which operates on the blood like a ferment—hence the term zymotic, derived from ζυμη, fermentum, or leaven—and tends to the production, in excessive quantity, of a poison similar to itself. The special eruptions coming under this head are :—

Rubeola,
Scarlatina,
Variola.

Arising from a similar cause, zymotic affections offer to our observation certain symptoms which are common to the whole ; for example, *constitutional symptoms*, due to the action of the poison in the blood and on the general economy, symptoms having the character of fever ; and *local symptoms*, manifesting the operation of the poison on the surface tissues of the body, the skin and mucous membrane. The former series of symptoms belong to the consideration of fevers ; the latter bring the zymotic affections into the family of cutaneous disorders ; and just as the history of fevers would be incomplete without embracing the eruptive fevers, the review of cutaneous diseases would be equally imperfect without the consideration of the phenomena presented by the operation of the zymotic poison in the tissues of the skin.

The poison of the zymotic affections, as of fevers in general, manifests its first and most powerful influence on the nervous system ; the brain, the spinal cord with its branches, and the organic system of nerves, are, as it were, intoxicated by the poison ; then a general excitement of the circulating system ensues, and the excitement of the circulating system is followed by an outburst of eruption, an exanthema of the skin.

The exanthema is manifested by redness, resulting from congestion of the vascular plexus of the skin, congestion of the

vertical or follicular capillary plexus (page 25), giving rise to puncta and papulæ, and congestion of the horizontal or papillary capillary plexus, producing suffusion. In rubeola or measles, the congestion affects chiefly the follicular plexus, and, governed by a law of structure, appears in small oblong clusters or corymbi, which give to the skin a mottled appearance, corresponding with the mottling of the arms of children in cold weather. In scarlatina the congestion is more diffused from a blending of the two forms of congestion, and probably from a greater activity of circulation; it is no longer limited to the small insular corymbi which represent the extent of distribution of the ultimate ramuscles of a small artery or the range of influence of a nervous twig, but occurs in patches of large size, or is more or less uniform over the whole surface. Moreover, minute papulæ, resulting from follicular congestion, which are common in scarlatina, are less frequent in rubeola, and exhibit their highest degree of development in variola. In variola the congestion is chiefly follicular, and produces papulæ, which subsequently run through the vesicular and pustular stage, and terminate in dark brown and black scabs.

The pathology of the zymotic eruptions is, therefore, an active congestion of the capillaries of the skin, running on to the production of minute papulæ, and of larger papulæ which pass through the vesicular and the pustular stage. As far as pathology is concerned, rubeola and scarlatina are aborted forms of variola; rubeola representing the simple congestive form; scarlatina the congestive and papular form; and variola the congestive, papular, vesicular, and pustular forms. It follows from this view of these eruptions, that the exanthema of rubeola, usually flat, may be more or less papular; and papulæ are often met with on the face, neck, hands, and legs, while they are absent elsewhere. Scarlatina, again, generally papular, particularly on the parts above indicated, may be more or less smooth. But rubeola and scarlatina never run on to the production of pustules, as is the case with variola. Rubeola and scarlatina, having but the limited range of simple congestion and papulæ, offer little variety of pathological structure; but the case is different with variola, which embraces all the chief pathological forms of inflammation of the skin; namely, redness, papulation, vesiculation, and pustulation. Variola may be arrested or aborted at

each of these stages, and we may have, instead of the perfect pustular development of the eruption, a series of aborted forms, that reach no further than the papular, the vesicular, or the incipient pustular stages. These aborted forms of variola are termed varicella, and as their "abortion" is a frequent consequence of a previous attack of variola, or of vaccination, conditions which modify the violence of the variolous poison, they are also called "modified variola."

Variola, or small-pox, besides representing the human disease known by that name, also includes vaccinia or the small-pox of the cow; we have therefore omitted to designate vaccinia separately; although from its importance as offering a safeguard against the violence of variola, and a protection to the population, there is no affection in the whole category of zymotic diseases of more importance to public health.

If we turn to the classification of Willan (page 62), we shall see that the diseases collected into the group of zymotic affections are dispersed among three of his orders; namely, *exanthemata*, *vesiculæ*, and *pustulæ*; *exanthemata*, taking possession of rubeola and scarlatina; *vesiculæ*, of varicella and vaccinia; and *pustulæ*, of variola. The student will perceive that he is a gainer, as also are science and art, by an arrangement which brings the consideration of these diseases together on a single page.

Of the origin of the poison or poisons which give rise to the zymotic affections we know very little. We assume that they are of organic creation, and are derived from the same source as the poisons which produce the continued fevers; but we do know that they are highly infectious and contagious, and are actively transmissible from an infected to a sound person, both through the medium of contact, namely, immediate or direct infection or *contagion*, or through the intervention of the atmosphere, namely, mediate and indirect infection, or simply *infection*. Moreover, there seems to be good reason for the belief that there are three separate and distinct poisons, although arguments are not wanting for supporting the theory that one and the same poison, under the influence of different atmospheric conditions, and in different states of the body, may have the power of giving rise to the differences of character which distinguish the three diseases. Thus, when rubeola prevails as an

epidemic, scarlatina is least frequent, and *vice versâ*; and occasionally, as in the spring of 1864, we meet with an epidemic, in which rubeola and varicella appear to be intermingled, and the same patient may experience in succession, an imperfect rubeola (rubeola notha) and a varicella.

The exanthema of the zymotic affections presents a curious difference of colour, which has suggested the term rubeola, ruby or raspberry-coloured, and scarlatina or scarlet-coloured, important diagnostic characters, depending possibly on a more sluggish circulation through the dilated cutaneous capillaries in the former, and a more active circulation through the latter; or upon some modification of the colouring principle of the blood by the poisonous ferment, such as occurs in association with the syphilitic poison.

The physiological relationship of the skin and mucous membrane is amply illustrated by the zymotic affections; the mucous membrane of the fauces is congested in all the three diseases, but most in scarlatina; in rubeola the congestion elects for its principal seat the conjunctiva, the Schneiderian membrane, and the mucous membrane of the trachea and bronchial tubes; and the eruption of small-pox is met with in severe cases also in the mucous membrane of the mouth, fauces, and trachea. In general terms, rubeola may be said to attack chiefly the mucous membrane of the air-passages; and scarlatina, the mucous glands and the mucous lining of the mouth and salivary glands.

The exanthema, in its evolution on the skin, makes its first appearance on the face and neck, next on the trunk and upper extremities, and lastly reaches the lower limbs, and departs in a similar order, while the eruption is always most abundantly developed on parts exposed habitually to the action of the air, such as the face and the hands. At its decline the redness loses its vivid hue and becomes dull, subsequently purplish, and not unfrequently leaves behind yellowish, brownish, and greenish stains which call to mind the tints of a bruise.

Congestion of the vessels of the skin is necessarily attended with a certain amount of swelling, the skin is somewhat thickened, and the subcutaneous cellular tissue more or less infiltrated, sometimes to the extent of constituting œdema. Hence the features look swollen or puffed, the limbs are enlarged, and œdema may prevail in the latter to a greater or less extent. The sensa-

tions of the skin are a moderate degree of tingling and itching in the early stage of the eruption, subsequently heat, and when desquamation begins, a very troublesome degree of pruritus.

Another phenomenon accompanying the decline of the eruption is *desquamation* of the cuticle. The congestion of the skin causes a temporary suspension of the process of epidermal cell-formation; the epidermis loses its vitality, and is separated from the newly-formed horny tissue produced beneath it, and when the skin resumes its normal functions, the old cuticle is cast off in the form of *exuviae*, of considerable extent; in scarlatina, the entire cuticle of the hands or of the feet is sometimes cast in a single piece, and the new and tender cuticle, showing through its transparent wall the pink hue of the derma, is seen beneath. The period of desquamation is with good reason regarded as a time of active transmissibility of the disease, for the cuticle is saturated with fluids produced during the most active period of fermentation of the poison, and particles of exfoliated cuticle become so many vehicles of contagion.

In the normal course of the zymotic affections a full development of the exanthema is favourable to the safety of the patient; disease would seem to expend its power upon the skin, and the action on the skin to divert the violence of the fever from the internal organs. Hence we regard with satisfaction a thorough development of the exanthema, while we perceive with apprehension the disappearance or retrocession of the rash after it has once broken out, and we employ all our efforts to restore it. All the three zymotic affections may exhibit the fever without the eruption; but in this case the fever is commonly mild, and the absence of the eruption indicates only a mitigated form of the disease.

The zymotic fevers are to a certain extent protective of the constitution against a repetition of the disease, and persons who have once had rubeola, scarlatina, or variola, may be regarded as free from the danger of their recurrence; nevertheless, instances not unfrequently happen, in which patients have suffered more than once from these affections; more commonly, perhaps, in the case of rubeola than in that of scarlatina or variola. As a general rule, the second attack is milder than the first; but this rule is not without its exception. Moreover, different epidemics of these fevers have generally their distinguishing

peculiarities, sometimes being more and sometimes less severe. And in each separate epidemic there is always great variety in the gravity of the disease, some cases being very serious and others very slight, without any apparent reason for such difference of character. Sometimes an epidemic begins with moderation and closes with severity, and *vice versâ*; and at the tail of an epidemic of variola, varicella is more frequent than in the middle of its course. Hence the rise, the height, and the decline of an epidemic may present a considerable amount of variety.

RUBEOLA.

RUBEOLA, or measles, also called *morbilli*, is an eruptive fever attended with constitutional symptoms of fever, with an eruption on the skin of a punctiform and mottled rash or exanthema of a dull red or raspberry colour, and with congestion of the conjunctiva and mucous membrane of the nose and respiratory tubes.

The constitutional symptoms are the ordinary series of febrile symptoms, ranging from a scarcely perceptible disorder of the system to the highest degree of severity. They are lassitude, weariness, drowsiness, pains in the head, in the back, in the limbs, and chills succeeded by flushes of heat; the pulse is frequent; the tongue white, with red edges and tip; there is soreness of throat, thirst, loss of appetite, nausea, and sometimes vomiting; constipation, high-coloured urine, and a frequent dry cough. These symptoms increase in severity during four days, and begin to subside at the outbreak of the eruption.

The exanthema first makes its appearance in the mucous membrane; on the third day the conjunctiva is suffused, the eyelids are congested and swollen, and there is a copious distillation from the eyes and nose, constituting coryza. At the same time there is sneezing and cough, or catarrh, and the cough, dry at first, quickly becomes moist and mucous, with considerable expectoration. The voice is hoarse; the fits of coughing frequent and severe, and accompanied with tightness and more or less pain in the chest.

The eruption on the skin first appears on the *fourth* day, sometimes on the third, and more rarely on the fifth. It is seen in

the first instance on the forehead, then on the front of the neck, on the cheeks, and around the mouth, and reaches its height in twenty-four hours. On the fifth day it invades the trunk and upper extremities; on the sixth, the lower extremities, in each instance reaching its height in twenty-four hours; and on the sixth or seventh day appears on the back of the hands. The decline of the efflorescence follows a similar course; on the sixth day it fades upon the face; on the seventh, upon the trunk and upper extremities; on the eighth, upon the back of the hands and lower limbs, and on the ninth day the form of the patches is discoverable only by a pale yellowish discoloration, which slowly disappears.

The exanthema of rubeola is a punctated rash, resulting from congestion of the capillary plexus of the follicles; the puncta are clustered into small oblong groups, or corymbi, and are more or less blended in each corymbus by a moderate suffusion, resulting from congestion of the interfollicular capillary plexus. This arrangement gives a mottled appearance to the congested skin, which is pathognomonic of rubeola. Here and there some of the pores of the follicles are raised into minute papulæ, and on certain regions of the body, as on the face and limbs, these papulæ are more strikingly apparent than on other parts. Indeed, on the face, it is not uncommon to find a general suffusion, roughened by papulæ, the corymbose appearance being lost; and in general the mottled arrangement of the clusters is more constant on the trunk of the body than elsewhere. Added to the corymbose form of the exanthem, as diagnostic of rubeola, we have the dull red crimson colour which has been compared to that of the raspberry; and at the decline of the eruption the exfoliation of the cuticle in thin foliaceous plates and furfuraceous scales.

The normal course of rubeola presents a four-day premonitory fever of moderate vehemence, a four-day exanthema, succeeded by a four-day decline, a subsequent exfoliation of the cuticle, and gradual return to health. It also brings before us an inflammatory congestion of the mucous membrane, beginning in the conjunctiva, the Schneiderian membrane, and the fauces, and running downwards along the trachea and bronchial tubes, accompanied with cough, dry and irritable at first, and subsequently moist and mucous, the mucus at the height of the disorder being raised in roundish pellets, termed *nummular*

expectoration. Later in the course of the disorder the mucous membrane of the alimentary canal participates in the congestion, and relieves itself at about the ninth or tenth day by diarrhœa.

A review of the normal course of rubeola is suggestive of its complications; its possible dangers; and its subsequent evils denominated *sequelæ*. The first and most important of these is the affection of the lungs; the catarrh, the hoarseness, and the cough usually subside on the seventh day; but instead of subsiding, the bronchitis may increase and run on to pneumonia and permanent disease of the lungs; there may be purulent discharges from the eyelids and nasal passages, and even ulceration. The mucous membrane of the mouth, of the fauces, of the salivary glands, may become inflamed, and proceed to ulceration and suppuration; the mucous lining of the larynx may become swollen and cedematous, and threaten suffocation. The diarrhœa, which generally ceases spontaneously in a few days after the disappearance of the rash, may be prolonged, and occasion ulceration of the mucous glands, and even the mucous lining of the genito-urinary apparatus may suffer a similar disorganization. Moreover, as a secondary evil, the mesenteric and lymphatic glands may become enlarged and impervious, and lay the foundation of tabes and superficial abscesses; there may be tubercular deposits in the lungs and in the serous membranes, or there may be rheumatic inflammation of the joints.

The period which elapses between exposure to contagion and the commencement of the fever, usually termed the *period of incubation*, varies between seven and fourteen days, and the term at which a patient may be supposed to be free from the danger of communicating the infection, three or four weeks.

Rubeola is a disorder of childhood, rare in infants, but occasionally met with in the adult. It may happen a second or a third time, and without the modification which occurs in variola; indeed, it is more likely to be severe in the adult than in children. It makes its attack usually in the winter and early spring, at that period of the year when catarrhs are most frequent; and, as we have seen, the chief danger of the disease is the propagation of the catarrh and subsequent bronchitis and disease to the structure of the lungs. The differences of man

festation of the symptoms of rubeola constitute its *varieties*, which are as follows:—

Rubeola vulgaris,
 „ sine catarrho,
 „ sine exanthemate,
 „ nigra.

RUBEOLA VULGARIS represents the common type of the eruption, consisting of constitutional and local symptoms, pursuing the course already described. The constitutional symptoms may be mild or severe, the local symptoms developed to a greater or less degree, and the disease may subside at the end of twelve or fourteen days, with a gradual return to health. On the other hand, if the patient be exposed to cold, or neglected, the cough may increase, and the foundation be laid for a serious state of disease that may terminate fatally. With proper management, rubeola is commonly a mild disorder.

Occasionally the symptoms are so slight as to render it doubtful if the case be really one of rubeola; the exanthem is more or less fully developed, but the constitutional symptoms are almost absent. An epidemic of this very mild description prevailed in the spring of 1864, and the doubtful character of the disease suggested the term *rubeola notha*, or spurious rubeola, given to it by Dr. Babington.

RUBEOLA SINE CATARRHO is an example of a mild form of measles, in which its more serious symptom, that of the affection of the mucous membrane of the air-tubes, is absent. In this case, as in rubeola notha, the constitutional symptoms are very moderate, although the exanthem may be fully developed. Rubeola sine catarrho is apt to occur more frequently at the beginning or end of an epidemic than during its height, and is met with in one or more members of a family wherein the rest pass through the disease in the ordinary way. Persons who have experienced this mild form of the complaint are more than usually liable to a subsequent attack of the disease.

RUBEOLA SINE EXANTHEMATE, called by Sydenham "*febris morbillosa*," is a rarer variation of measles than the preceding, and a similar example of aberration from a normal standard, the peculiarity in the present case being the existence of the fever without the exanthema. Cases of this kind are also met

with more or less numerous in the course of a rubeolous epidemic.

RUBEOLA NIGRA, or black measles, is a designation derived from the colour of the exanthem; the circulation through the cutaneous capillaries is slower than natural, those vessels are dilated, and the blood, robbing the tissues of their carbon, is converted into venous blood. The eruption, consequently, is purplish or livid in hue, and extravasations are apt to take place, which suggest the idea of purpura. Rubeola nigra is rare, and occurs for the most part in weakly and exhausted constitutions; and the constitutional symptoms are sometimes complicated by effusions into the cellular tissue and into the serous cavities.

DIAGNOSIS.—In zymotic fevers, as in fevers in general, the medical man is attracted by the dulness, the listlessness, and drowsiness of the patient. If, conjoined with these symptoms of depression of the powers of the nervous system, there be present coryza and catarrh, and the patient has not already had rubeola, suspicion becomes stronger, and is increased if a rubeolous epidemic is known to be in existence at the time. The fourth day of these symptoms is marked by the appearance of the rubeolous rash upon the face, and its dull red and raspberry-tinted colour places the question beyond further doubt: the case is one of rubeola.

CAUSE.—A special contagious principle or poison, sometimes sporadic, more frequently conveyed from one person to another, either by the atmosphere or by actual contact. Rubeola is the most contagious of the zymotic affections, and prevails most abundantly during the damp and cold seasons of the year, when catarrhs are frequent. Catarrh is a predisposing cause.

PROGNOSIS.—Rubeola is a favourable augury, and when it occurs divested of irregularity of course and complications, is a mild disorder. It is serious only when neglected, and when there exists previous disease, particularly of the lungs.

TREATMENT.—As the issue of rubeola involves the safety of the lungs, the patient must be submitted to rigorous discipline, so far as the avoidance of chill is concerned. He must be kept in an apartment of equable temperature (about 60°), well ventilated, but protected from draughts of cold air. If the feverish symptoms be slight, he may be permitted to be up; but even

with moderate fever he would be much better in bed, and kept as tranquil as possible both in body and mind. Too much care is a fault on the right side, provided that the apartment be not too hot nor the bedclothes too abundant.

The diet should be moderate and unstimulating: broths and farinaceous puddings; and if there be nausea and want of appetite, with a tendency to sickness, milk diet will be most suitable. Thirst may be assuaged with toast-water, with water acidulated with lemon-juice or tamarinds, or containing from half a drachm to a drachm of chlorate of potash to the pint, or with simple barley-water. The state of the bowels and secretions must also be noted, and if there be constipation, some mild aperient may be administered, such as a senna or rhubarb draught; but the normal supervention of diarrhoea at the turn of the disease must be borne in mind. If the secretion of the liver be suspended, a small dose of calomel or grey powder may be requisite; and if the critical diarrhoea fail in its appearance at the decline of the disorder, a gentle aperient may be administered to supply its place.

The treatment of rubeola might be summed up in two words—WATCH NATURE, were it not for a knowledge which experience has given us with regard to a specific remedy, the carbonate of ammonia. As soon as rubeola is suspected or developed, and after a preliminary clearance of the alimentary canal by means of a mild purgative, five grains of carbonate of ammonia in solution in water, broth, or milk, may be administered every three hours; in severe cases it may be given oftener—every hour or every two hours; and when the symptoms subside, less frequently—namely, every four or every six hours, diminishing the frequency of the remedy by degrees, until health is restored. Dr. Charles Witt,* who is a zealous advocate of the ammonia treatment, suggests that acids should be abstained from during its use.

When the ammonia treatment is not adopted, the best remedy is the liquor ammoniæ acētatis, 3 ij., with or without nitric ether (3 iss.), and camphor mixture (ʒj.); and where the bronchitis is troublesome a few drops of ipecacuanha wine (℥x). Or the practitioner may prefer effervescent salines, with diapho-

* "An Effectual and Simple Remedy for Scarlet Fever and Measles, with an Appendix of Cases." Third edition, 1862.

retics, with which may be combined, if necessary, saline aperients.

The local treatment of rubeola is best provided for by keeping the body covered with bedclothes, and preserving a temperature agreeable to the sensations of the patient; but where there exist pruritus and uneasiness of the skin, and when desquamation has commenced the pruritus is often very troublesome, the skin should be anointed with some simple oleaginous substance such as lard. The lard should be applied with gentle friction to the whole body, exposing as little of the skin as possible during the operation, and the inunction may be repeated every twelve hours, or oftener if the itching should return.

During convalescence, the preservation of a wholesome temperature of the body, by means of warm clothing, is especially important, as neglect of proper precautions at this period is a common cause of the serious sequelæ which sometimes follow measles. Indeed, the necessity of shielding the patient from exposure in zymotic diseases cannot be too strongly impressed upon the mind of the student.

The leading complications of rubeola are: retrocession or sudden disappearance of the exanthema, severe bronchitis, pneumonia and cedema of the glottis, inflammation and ulceration of the conjunctiva, inflammation of the ear-tubes with mucopurulent discharge, ulceration of the mucous glands of the mouth, inflammation and enlargement of the salivary glands, chronic diarrhoea, dysentery, and rheumatism of the joints.

Retrocession of the eruption is to be treated by the application of stimulants to the skin, either stimulating liniments, such as ammonia or cajeput, or mustard, spongiopiline saturated with a solution of mustard, or the spiritus sinapis, mustard poultices, or the ammonia bath.

Bronchitis, pneumonia, and the sequelæ involving the mucous membranes, the synovial membranes, and the glands, must be treated like independent inflammations of those organs, and in every instance the treatment must be combined with counter-irritation. It may be necessary to apply a blister for a longer or shorter period, and follow the blister with a poultice, or with inunction and cotton wool; or we may prefer the counter-irritant action of the compound tincture of iodine, or a saturated tincture.

SCARLATINA.

SCARLATINA, or scarlet fever, is an eruptive fever, attended with constitutional symptoms, with an exanthema or rash of a scarlet colour, partly papular and partly suffused, and with an inflammation of the fauces (angina) of greater or less severity. It is highly contagious, is developed between the second and tenth day after infection or contagion, has a normal course of nine or ten days, and terminates in desquamation of the epidermis.

The constitutional symptoms are similar to those of rubeola: lassitude, weariness, drowsiness; pains in the head, back, and limbs; rigors, flushes of heat, nausea, and rapid pulse. To these, which are the symptoms of invasion, there speedily follows a general febrile reaction; the eyes are bright and humid, but without lacrymation; the features are swollen; the tongue is white and moist in the middle, but red at the edges and tip, and studded with red papillæ; the fauces are red and inflamed, the tonsils enlarged; there is a short and dry cough, thirst, constipation, and high-coloured urine.

Immediately preceding the outbreak of the rash there are frequently, restlessness, anxiety, sometimes convulsions, and sometimes delirium; these symptoms are relieved by the eruption. The fever is generally augmented towards the evening, and not unfrequently there is an exacerbation of its symptoms at the beginning of its decline.

The exanthema, or rash, makes its appearance on the second day of the fever; the surface of the body is hot and dry, more or less swollen, especially that of the face, hands, and feet; and there is a sense of tingling and itching of the skin. It is first apparent on the face, the neck, and chest; on the second day it reaches the trunk and upper extremities; and on the third day the lower extremities; on the third or fourth day it arrives at its height, and on the fifth begins to decline, following the same order as that of its invasion. The decline continues during the sixth and seventh day, and on the eighth and ninth is followed by desquamation and exfoliation of the epidermis.

On close inspection of the exanthema it is found to be composed of minute puncta and papulæ, blended by a superficial suffusion; on the face and limbs the suffusion is uniform, but on

the trunk the rash is more or less patchy, and is always more vivid on the loins, the nates, and around the joints, than elsewhere. Sometimes, and constantly in certain regions of the body, the exanthema is smooth, from the presence of a moderate degree of oedema of the skin,—this is the *scarlatina plana vel lævigata*; at other times, and in other situations, it is rough and papular,—*scarlatina papulosa vel milliformis*; and occasionally, but very rarely, there may exist an intermingling of vesicles or pustules,—*scarlatina vesicularis, vel phlyctænosa, vel pustulosa*. The rash is always brighter and more livid in the evening, when fever is highest, than at any other time of the day.

Scarlatina makes its attack between the second and tenth day after exposure to contagion; the exanthema begins on the second day of the fever and lasts commonly for seven days, making the whole period of the active stages of the disease nine days. On the third day of the fever the exanthema extends to the eyes, nose, and mouth, causing congestion of the mucous membrane.

Scarlatina, like rubeola, is remarkable for its extreme variation of intensity, being sometimes so mild as to be a mere trivial disorder, almost without constitutional symptoms of any kind, and at other times so severe as to be rapidly fatal. Where the exanthema is fully developed, the febrile symptoms are for the most part mild; but the most severe form of the disease is that which is accompanied with much congestion of the mucous membrane, and particularly of the fauces. The varieties of scarlatina are founded on these differences of character: the most simple form, that in which the exanthema is fully developed and the mucous congestion moderate, is termed *scarlatina simplex*; while the scarlatina attended with a severe congestion of the mucous membrane of the fauces, is the *scarlatina anginosa*. Another form of the disease is termed *scarlatina maligna*, from the dangerous nature of the affection of the throat; while a fourth is distinguished by general mildness, and by the absence of exanthema,—*scarlatina sine exanthemate*. Other modifications are also occasionally met with; a child may pass through a mild form of the disorder, and in the midst of convalescence may be attacked with a severe form; the former may present as its leading feature exanthema, the latter angina. Dr. Sims has recorded such a case, and we have seen a similar one. Sometimes scarlatina is accompanied with acute pains in the joints or in the head.

and sometimes with a troublesome cough. And occasionally there is met with a form of the affection, termed *scarlatina latens* by Copland, in which the exanthem and angina may both be absent, and the disease manifested only by one of its sequelæ, such as dropsy.

In its most favourable form scarlatina expends its violence chiefly on the skin and mucous membrane of the fauces, and then gradually subsides; but when it is interrupted in its course, when the cutaneous rash is accidentally checked, in an unhealthy constitution or unfavourable season, or when the prevailing epidemic assumes a severe character, several organs of the body are liable to be endangered by its violence; the most important of these, after the glandular structures of the throat, being the kidneys, the pericardium, the joints, and the mesenteric glands.

The morbid phenomena which follow an attack of scarlatina are termed its *sequelæ*, and are sometimes referrible to the violence of the inflammation attacking the skin, as in the case of œdema of the subcutaneous tissue, and mortification of parts of the skin; sometimes to a similar morbid action taking place in the mucous membrane and resulting in chronic conjunctivitis, chronic otitis, loss of hearing, and suppuration from the ears, ulceration within the nares, ulceration of the mouth and lips, ulceration of the fauces and larynx, inflammation and suppuration of the salivary glands, chronic bronchitis, chronic diarrhœa, and a mortification of the vagina or rectum; sometimes to inflammation of the lymphatic system, such as enlargement of the lymphatic glands of the neck and mesenteric glands; sometimes to inflammation of the serous membranes, as of the pericardium, the peritoneum, or the synovial membranes, and sometimes to inflammation of the kidneys, inducing anasarca and dropsy.

Inflammation of the kidneys is possibly the most serious of the sequelæ of scarlatina, and is commonly induced by too early exposure of the body to cold or damp after the decline of the fever. It is apt to occur between the tenth and twentieth day, sometimes earlier, is preceded with heaviness, headache, restlessness, and symptoms of constitutional disturbance; and these symptoms are quickly followed by œdema, commencing in the face and lower limbs, and extending by degrees to the whole body; the belly is swollen, and the urine, scanty in quantity, is

commonly found to contain albumen, blood particles, and cellular detrita from the tubuli uriniferi.

Anasarca sometimes results from simple anæmia, and happens in weakly and lymphatic children; in this affection there are no special symptoms of constitutional disturbance, and the urine is very little altered in quantity; it is pale, and contains neither albumen, blood particles, nor epithelial cells.

The varieties of scarlatina arranged in tabular order are as follows:—

Scarlatina simplex,
“ anginosa,
“ maligna,
“ sine exanthemate.

SCARLATINA SIMPLEX is the typical form of the disease, in which the constitutional and local symptoms are moderate, and run a regular course. As already remarked, the constitutional symptoms are sometimes so slight as hardly to deserve the name of fever, while the exanthema is fully developed. This is the most desirable combination for the patient, but nevertheless requires the same caution in management as the more severe forms. There is always congestion of the fauces, even in the mildest variety of scarlatina, and in scarlatina simplex there exists a moderate amount of swelling of the mucous membrane and sore throat.

SCARLATINA ANGINOSA is distinguished by a predominance of sore throat, and a more severe type of the disease, more constitutional disturbance, more local suffering, and an irregular exanthema, deficient in amount of cutaneous congestion, and imperfect in its course.

The fauces are inflamed from the beginning of the disease, and often before the constitutional symptoms are developed; by the second day after invasion the voice is hoarse, the throat feels rough, there is an accumulation of viscous mucus on its surface, deglutition is painful and difficult, and there is a sense of constriction and tightness that extends from the throat itself to the surrounding part of the neck and to the muscles of the jaws. During the third and the fourth day the redness, the swelling, and the constriction increase, the uvula and tonsils are so much swelled as to block up the isthmus faucium almost entirely,

patches of false membrane appear upon the inflamed surface, and the membrane covered by these patches is apt to pass into a state of superficial ulceration. The tongue is coated with white mucus, and studded over with papillæ of a vivid red colour.

These symptoms are accompanied with nausea, rapid respiration, a quick feeble pulse, parching heat of skin (104° — 108°), restlessness, great debility, headache, and often delirium.

The exanthema is sometimes retarded to the third day of the constitutional symptoms, is irregular in the order of its appearance, and deficient in the amount of cutaneous congestion, showing a patchy redness over the greater part of the body, and a more uniform redness only around the joints. It sometimes disappears for a day, and returns, remains later than in scarlatina simplex, and is succeeded by a less perfect desquamation.

The decline of the exanthema commonly takes place on the fifth or sixth day, and at the same time the mucous membrane of the fauces begins to improve, the swelling subsides, the sloughs separate, and the surface assumes a more healthy character. The restoration of the fauces, however, is a gradual process, and where ulceration has taken place and the powers of the constitution are low, it may be delayed for several weeks.

SCARLATINA MALIGNA, or putrid sore throat, is a scarlatina anginosa, attended with extreme prostration of the nervous system, with extensive and deep ulceration of the fauces and adjacent parts, and with an imperfect and partial exanthema. It occurs under the influence of an unhealthy state of constitution of the individual, or of unhealthy hygienic conditions, is highly dangerous, and commonly fatal.

This form of scarlatina is sometimes met with in the course of an ordinary epidemic, and sometimes prevails as the leading type of the epidemic. It is marked from the beginning by prostration of power, feeble pulse, restlessness, anxiety, and delirium. The fauces are not swollen, but are deeply and extensively ulcerated; the whole mouth is inflamed and aphthous, the tongue swollen and ulcerated, the pharynx and larynx loaded with viscous phlegm, more or less ulcerated, and the respiration quick and obstructed. The ulceration frequently becomes sloughing, the breath is excessively offensive, the eyes are red and sunken, an acrid discharge distils from the nose, the ears

than rubeola, and less disposed to affect the same person a second time. As a rule, scarlatina, rubeola, and variola, when they have once run their course regularly, are not subject to recurrence; this, however, is a rule with many exceptions, but less in the case of scarlatina and variola than in that of rubeola. Patients under scarlatina are, at all periods of the fever, capable of communicating the contagion, but most so during the stage of desquamation, and after convalescence they require seclusion for a month or six weeks.

PROGNOSIS.—Scarlatina is always grave; if not in its immediate symptoms, it is so in the liability to disease of important internal organs, for example, the kidneys. Nevertheless, scarlatina simplex is sometimes so slight as to disarm apprehension; so the anginous form, which is always alarming. Sometimes the constitution of the patient is, as it were, overwhelmed with poison, and death occurs in a few hours. Scarlatina is also rendered dangerous by retrocession, by the early evidence of weakness and prostration, by a livid appearance of the throat, by complication with organic disease. It often deals severely with adults, especially with pregnant and recently-confined women, and, according to the observation of Dr. Peter Hood, is generally more severe in children with dark eyes and complexion than with their brothers and sisters of blue eyes and fair complexion.

TREATMENT.—On the bare suspicion of scarlatina, and certainly as soon as the disorder is declared, the patient should be put to bed; he should be kept quiet; the bed-clothes should be light but sufficient; the apartment darkened, kept at a reasonable temperature, and properly ventilated. Two points should be looked to with special attention,—the avoidance of light, heat, bustle, noise, and conversation, which are calculated to excite the nervous system of the patient; and the avoidance of draughts of cold air which might check the development of the exanthema, or, when developed, might cause its retrocession. The patient's head should be well raised on the pillow, and kept cool, and his body and feet warm.

The diet should consist of milk, tea, broths, farinaceous puddings, and cooling and refreshing drinks, such as toast-water, lemonade, tamarind-water, soda or seltzer-water, or a weak solution of chlorate of potash, acidulated with hydrochloric acid.

The medicines likely to be required are a mild purgative, to remove irritating ingesta or acrid secretions from the alimentary canal, and, a few hours later, a saline and diaphoretic mixture, composed of liquor ammoniæ acetatis vel citratis, spiritus ætheris nitrici, and mixtura camphoræ, administered every four hours. The best purgatives for the purpose indicated are the compound jalap powder, senna, or rhubarb. And great care must be taken during the action of the bowels that the patient be not exposed to chill. In cool weather a woollen gown would be preferable to one of lighter material, and the bedclothes must be accommodated accordingly.

We must confess to a strong leaning in favour of the ammonia treatment, and, instead of salines, we would begin from the first with a solution of the carbonate of ammonia, two or three grains for a child under seven years of age, and four or five grains above this age, or for an adult: the dose should be dissolved in from two to four drachms of water, and administered every two, three, or four hours, according to the degree of severity of the fever; in very severe cases, every hour. The advocates of the ammonia treatment* attribute to it the most happy properties: it calms irritability, tranquillizes the nervous system, induces sleep, promotes the exanthema, subdues fever, heat, and delirium, and soothes the throat and alimentary canal. And to these virtues we may venture to add that it diminishes the quantity of viscous mucus secreted by the mucous membrane of the fauces. This treatment, however, is not intended to supersede the necessary daily attention to the secretions, and the use of tonics when they seem to be required.

Dr. Peter Hood, in an excellent monograph on scarlatina, advocates a method of treatment which he has found in the highest degree successful. Attributing the nausea, which so constantly attends the invasion of scarlatina, to the presence of irritant matter in the stomach, he begins with an emetic composed of ipecacuanha and sulphate of zinc, the dose for a child of six years being ten grains of each, and follows the emetic with as much warm water as the child can be made to drink. After the action of the emetic has subsided, he administers a purgative of scammony and calomel (gr. vj.), and by way of

* Vide "An Effectual and Simple Remedy for Scarlet Fever and Measles," by Dr. Charles Witt.

stimulating the emunctory action of the liver and alimentary canal, he continues the purgative every night, in modified doses, so as to secure one proper evacuation daily. With children who can swallow a pill he varies the remedy by prescribing grey powder with extract of henbane and the compound rhubarb pill; and when the tongue is clean he has recourse to simple rhubarb or castor-oil as a laxative, or any simple medicine; but as long as the tongue remains coated, which he takes as an evidence of the presence of morbid secretions in the stomach and alimentary canal and morbid action of the liver, he adheres to the mercurial in one form or another. And he keeps up the proper action of the bowels by this means throughout the whole course of the disease.

The alimentary canal being kept to its duty, his next remedy—the staff of his treatment—is quinine; the dose, one or two grains every four or six hours. He combines the quinine with eight or ten minims of dilute sulphuric acid and half a drachm of compound tincture of bark or orange-peel. He very justly serves that quinine alone, without the eliminatory action of the bowels, would be injurious, but that the combined action of the two kinds of remedy, with proper attention to diet and regimen, is calculated to subdue all the more grave symptoms of the disease, and bring it to a favourable termination, and without the danger of the *sequelæ* which render scarlatina so formidable. The student will be struck with the solid sense of his view of the “quinine treatment” of scarlatina, and will doubtless profit by Dr. Peter Hood’s experience.

Dr. Hood is careful to maintain a liquid diet for his patients; the chief support being milk, sopped bread, and beef tea. Solid food is prohibited until the tongue is clean, and has remained so for a few days; and bed is to be maintained until the desquamation is over. Wine he allows to adults, but does not think desirable for children, excepting in the malignant variety of the disease, and where prostration of power is apparent. Where there is restlessness and irritability, with a clean tongue and want of sleep, he prescribes Battley’s solution of opium (℞ v. ad æt. 4); for dirty-water stools, he adds a few grains of aromatic confection, with tincture of cinnamon and cinnamon-water; and for irritability of heart’s action at the close of the fever, he orders one grain of Dover’s powder, with half a grain

of powder of conium, every four hours, followed in an hour by a draught of supercitrate of potash and sweet spirits of nitre.

Burning heat of the skin is sometimes a very distressing symptom to the patient in scarlatina, and we are called upon to prescribe a remedy. Sponging with warm vinegar is sometimes used for this purpose; we have usually given the preference to sponging with a tepid solution of ammonia of moderate strength; but the remedy which is best of all suited to effect the object, is inunction with warm lard. The lard should be gently but well rubbed into the skin night and morning, beginning with the limbs, and passing thence to the trunk of the body, and at the same time avoiding the exposure of a larger surface than that immediately under the operation. The inunction may be made more pleasant by the use of benzoated lard; but common lard answers every purpose. This simple remedy not only relieves the heat and irritation of surface, but tranquillizes the whole nervous system, fixes the exanthema in the skin, assists desquamation, reduces the tendency to congestions of internal organs, and diminishes the liability to the diffusion of contagion.

At the decline of the disorder, when convalescence is established, the patient's strength may be helped with mild tonics, such as the citrate of iron alone, or with quinine; a more generous diet, meat, and a little wine. He should be kept in bed as long as possible, and still longer to his room, and on resuming his ordinary dress should be warmly clothed in flannel, with a view to prevent secondary complications, which are often more dangerous than the original disease.

The angina of scarlatina is generally the most difficult part of the treatment of the disorder; the swelling of the fauces renders deglutition painful and difficult, and also impedes respiration; and the swelling of the salivary glands and adjacent parts impedes the opening of the jaws, and often seriously interrupts the circulation through the brain. This state of things has led to the suggestion of leeches behind the ears, or in the submaxillary region, and also to that of blisters; but both these remedies are highly objectionable, and should be avoided if possible. Loss of blood, by adding to the extreme weakness of the patient, might be fatal in its effects, and the irritation of blisters might increase the inflammation of the fauces. We have found inunction with lard, and a covering of cotton wool, a

good substitute for both. Dr. Peter Hood recommends linseed poultices as hot as they can be borne, and repeated as often as they cool; while, for counter-irritation, we should prefer the compound tincture of iodine to the blister.

The remedies applicable to the fauces directly are gargles and the nitrate of silver, either in the solid form or in strong solution. The stick of nitrate of silver may be used at the outset of the congestion of the throat, with the view of changing the morbid inflammation into one of a more healthy character; and for this purpose the solid stick is more serviceable than a solution. If the latter be preferred, its strength must be from twenty to thirty grains to the ounce, and it should be applied by means of a piece of sponge firmly fastened to the extremity of a handle. Not unfrequently the patient is unable to use a gargle, and then it must be injected into the mouth by means of a syringe. For removing viscous mucus and sordes from the mouth and fauces, a small piece of sponge is the best instrument, and the sponge may be previously moistened with one of the solutions intended for rinsing the mouth. The solutions the best adapted for gargles are sulphuric acid, the chloride of sodium, the hypochlorate of ammonia, the permanganate of potash, the chlorate of potash, and the chlorine solution developed by the combination of chlorate of potash and dilute nitric acid—one drachm of each to eight ounces of water—or by the mixture of chlorate of potash and strong hydrochloric acid. All these gargles have the advantage of being innoxious or even beneficial when swallowed; and while acting the part of moderate stimulants to the mucous membrane, they also correct fœtor. Dr. Peter Hood eschews the nitrate of silver, excepting in ulceration; and for a gargle generally pleasant to children, and soothing to the throat, recommends a pint of *thick* barley-water, with one ounce of lemon-juice and half an ounce of honey.

As a curative remedy, the most important of all is the solid nitrate of silver, and this should be applied twice in the day, and efficiently. Occasionally it is found desirable to have recourse to steaming the throat by inhalation, and we have seen great comfort derived from the inhalation of the vapour of ammonia.

In retrocession of the exanthema we may have recourse to the hot bath, and may very advantageously add a handful of mustard to the bath. We have already remarked that the

chances of retrocession are very much diminished by the employment of inunction, and would suggest as a general stimulant of the skin, in the case of that event, a bath at 100° , containing an ounce of strong solution of ammonia to the gallon,* or where the bath was impracticable, sponging the skin with water of the temperature of 120° , containing one ounce of strong liquor of ammonia to the quart. After the bath or sponging, the inunction with lard might be repeated very advantageously.

Where the head is much affected, as with severe pain and delirium, it will be necessary to crop the hair closely, and apply ice to the scalp. A blister on the nape of the neck or behind the ear has also been recommended, and counter-irritation of the feet and lower limbs. When the pulse is strong and hard, leeches have been suggested. These are questions which must be left to the judgment of the practitioner; but it is desirable in such cases to be assured that the cerebral congestion does not proceed from irritant matter in the alimentary canal. Dr. Peter Hood favours an emetic where that is the case, and regards the cerebral congestion as sympathetic; on the same principle, an active purge might be found useful.

When the presence of anasarca indicates congestion of the kidneys, the treatment consists of counter-irritation of the skin and alimentary canal, and the use of diaphoretics and mild diuretics. The patient must be placed in a warm bath (90° — 98°), containing ammonia, twice a day; inunction must be performed after the bath. A purgative of compound jalap powder with calomel must be administered, and repeated if necessary; the region of the loins should be painted with compound tincture of iodine, saturated with iodine; and gentle diuretics, such as the bitartrate of potash, citrate or acetate of potash, combined with the liquor ammoniæ acetatis and digitalis, and saline aperients, should be exhibited internally.

When the anasarca results merely from anæmia, the proper remedies are chalybeate tonics, such as the citrate or tartrate of iron, with quinine, or the tincture of the hydrochlorate of iron.

In *scarlatina maligna*, the indications for treatment are the restoration and support of the vital powers, and the local relief of the fauces and the skin. For the maintenance of general

* See a paper by Mr. Grantham, of Crayford, "On the Therapeutic Effects of Ammonia as a Dermic Agent in the Treatment of Disease."—*Medical Gazette*.

For the nourishment should be of the best kind; for example, essence of meat, and port wine, administered alternately and frequently. Any gastric irritation from accumulated ingesta or acid secretions, should be prevented by mild but efficient remedies. The best tonics are the liquor cinchonæ with sulphuric acid, tincture of orange-peel with nitromuriatic acid, hops, cassia, canella, &c. The liquor cinchonæ may be administered very advantageously in port wine. Ammonia also is as applicable to the malignant form of scarlatina as to the simple kind, and a drink of chlorate of potash (3j ad ʒ xvj), recommended by Dr. Hunt, or the euchlorine mixture (potassæ chloratis, acidi citrici diluti aa 3j, aquæ ʒ viij).* The fauces and mouth should be gargled or syringed with the euchlorine solution, or with a simple solution of chlorate of potash, carbonate or hydrochlorate of ammonia, or common salt. These solutions may also be injected into the nostrils, to relieve the Schneiderian membrane, and reach the back part of the palate. Considerable benefit is derived in some cases from the inhalation of the vapour of vinegar or ammonia. For the heat and parched condition of the skin, the best treatment is sponging with warm vinegar, or a moderately strong lotion of ammonia (ʒj—ʒij liquor ammoniac ad aquam ʒ viij), and afterwards applying the glycerine ointment with gentle friction.

Scarlatina sine exanthemate must be treated, in regard to its severity, according to the principles already laid down; in mild cases the warmth of bed and a flannel shirt may be sufficient to draw forth the exanthema, or if the nervous system or mucous membrane seem to be suffering from its absence, the skin might be stimulated by the ammonia lotion used warm, the ammonia bath, or a hot bath with mustard, anointing the skin afterwards with warm lard, applied with moderate friction.

The more serious of the *complications* of scarlatina manifest themselves in the form of affections of the brain, the larynx, the lungs and pleura, the pericardium, the alimentary canal, the liver, the kidneys, the peritoneum, and the joints. Affection of

* The formula recommended by Dr. Watson is a very useful one: Potassæ chloratis ʒij, dissolved in ʒij of hydrochloric acid, diluted with ʒij of water, kept in a stoppered bottle and in a dark place. Of this mixture, ʒij may be added to one pint of water, and a dose of half an ounce or an ounce given every hour or two times.

the brain is shown by delirium and coma, and these symptoms may result from congestion of the brain, independent of much inflammation of the fauces; congestion from mechanical interference with the circulation where there is much swelling of the throat; and congestion from irritability. In all these instances the counter-irritation of a blister may be necessary, and in the two former a few leeches may be serviceable. In the last of the three we shall gain more advantage from the use of sedatives. In all the ammonia treatment is especially valuable. In the other local affections counter-irritation is an important remedy, and in extreme cases the use of a few leeches. When the mucous membrane of the larynx, besides being congested, is swollen from œdema, tracheotomy may become necessary. In congestions of the thoracic organs, our remedies are the same, while in diarrhoea we may derive a great amount of relief from a large poultice, or from inunction and cotton wool, while the counter-irritant action of ammonia may, at all times and in every situation, be resorted to. In affections of the joints the lard inunction and cotton wool are very useful; and in ulceration of the fauces, the nitrate of silver either in solution or in powder puffed upon the sores.

VARIOLA.

VARIOLA, or small-pox, is an eruptive fever, attended with general symptoms of fever, the result of the presence of the variolous poison in the blood, and with the development on the skin of an eruption which runs rapidly through the punctate, papular, and vesicular stages to that of a pustule. It is infectious, occurs commonly as an epidemic, is accompanied with congestion of the mucous membrane, particularly of the respiratory passages; and is apt to leave behind permanent pits and cicatrices on the skin.

The constitutional symptoms of variola are the ordinary series of symptoms accompanying the invasion of fever; for example, depression of spirits, weariness, prostration of power, somnolence, restlessness, rigors; pains in the head, in the limbs, and in the loins; quick small pulse, hurried respiration, thirst, loss of appetite, white coated tongue dotted with red papillæ, nausea

sometimes vomiting, tenderness of epigastrium, constipation, and scanty and high-coloured urine. The skin is hot, the conjunctivæ suffused; there is sometimes cough, sometimes oppression of breathing, occasionally lethargy or coma; and in young children convulsions. The tongue, white at first, soon becomes red at the tip, and afterwards red over the entire surface. The pain in the loins is regarded as pathognomonic, and is supposed to indicate congestion or irritation of the kidneys; and the general symptoms, as in most other fevers, exacerbate in the evening.

The period which ensues between the reception of the infection and the onset of the constitutional symptoms is termed the period of *incubation*, and varies in duration from five to twenty days, and sometimes more. The early constitutional symptoms comprise the period of *invasion*; and these are followed at the end of two to four days by the period of *eruption*. The eruptive period continues five days, and is succeeded by the period of *suppuration* or *maturation*, the period of *desiccation* of the pustule, and the period of *desquamation*. The three latter periods occupy each three days, making the entire period of the eruption from its first outbreak to the fall of the scabs fourteen days.

The fever of variola is somewhat increased at the moment of outbreak of the eruption, as though nature were putting out all her strength to cast forth the poison from the blood; and is relieved as soon as the eruption is fairly established. The sense of oppression, the nausea, and the sickness are reduced, and the pulse acquires a more healthy tone. The remission of the fever continues for seven days, and until the completion of maturation on the eighth day; on this latter day the local congestion of the skin is at its height; the mucous membrane participates in the congestion and suffering; the secondary fever sets in; there is depression of the nervous system, delirium, often brown tongue, and symptoms of typhus; sometimes cough and hæmoptysis, and occasionally hæmaturia. This severe exacerbation of the fever lasts from the eighth to the eleventh day, and then begins to amend.

The exanthema of variola commences with the well-defined red puncta of follicular congestion; the apertures of the pores are raised and hard to the touch, and are quickly transformed

into conical *papulae*. The *papulae* or *vari* soon become vesicles at their points, and the *conical vesicles*, spreading by their base and swelling at their circumference, are flattened at the summit and depressed or umbilicated at the centre, constituting *umbilicated vesicles*. At the first appearance of the puncta the skin is of a bright red colour, somewhat swollen and generally suffused; but as the development of the *vari* and vesicles proceeds, the redness becomes more concentrated around these points, and forms an areola to each of the vesicles. The contents of the vesicles are in the first instance colourless and transparent, then opalescent and milky, and finally are changed into pus; and the vesicle is thereby converted into a pustule. The formation of pus commences on the sixth day and continues until the eighth day, when suppuration is complete and the pustule attains maturity. The conversion of the contents of the vesicle into pus is attended with a change in its form; it loses its umbilicated figure, and becomes hemispheroidal. At the maturity of the pustule, namely, on the eighth day, the skin of the whole body is swollen; it is vividly red; there is a painful feeling of tension and throbbing; and the congestion of surface extends to the mucous membrane. The swelling begins in the face and head, and descends to the body and limbs, and lastly to the feet and hands. The eyelids are often so much swollen as to bury the eyes, the nose is tumefied and distorted, and the lips distended and enlarged. With this severe stage of inflammation of the skin the general system participates, and the period of secondary fever, lasting from the eighth to the eleventh day, is established. The period of *desiccation* of the pustules, extending from the ninth to the eleventh day, and commencing a day earlier in the face than on the rest of the body, is marked by a subsidence of the tumefaction of the skin, and the presence of considerable itching. At this period it is difficult to prevent the patient from breaking the pustules by scratching; when so injured they bleed, and the drying of the blood gives rise to black scabs. When the scabs fall off naturally on the twelfth and following days, the base upon which they rested is depressed and presents a vivid red colour, and the redness remains for several weeks. The epidermis exfoliates in successive layers, and the pits and cicatrices left by the pustules assume a more or less permanent character.

The exanthema makes its first appearance around the lips and upon the forehead, then spreads over the face, the neck, and arms, and finally invades the trunk and lower extremities. Instead of occupying four days, as in the case of rubeola, or two days, as in scarlatina, the whole surface is invaded, in variola, in twenty-four hours. The puncta and granular summits of the follicles are visible on the first day; on the second, the granular pores have become vari; on the third day, vesicles. During the third, fourth, and fifth days, the vesicles have become umbilicated from the greater distension of the circumference than of the initiatory centre; and on the fourth and fifth days the areola around the vesicles is clearly defined; on the sixth, seventh, and eighth days, the contents of the vesicles are changed into pus; they lose their flattened and umbilicated figure, and become hemispheroidal, and they attain their maturity on the eighth day. On the ninth day some of the pustules burst, while the rest begin to dry up; and on the eleventh day the greater number of the pustules are converted into dry scabs, which are cast by desquamation during the twelfth, thirteenth, and fourteenth days, some retaining their adhesion to the skin for a week or ten days longer. Suppuration commences in the face, and thence extends to the body and limbs, making its appearance last on the feet and hands.

The mucous membrane of the respiratory passages and alimentary canal participates in the congestion of the cutaneous surface from the outset; the conjunctiva is suffused; the fauces, mouth, and pharynx are red and swollen; there is soreness of throat in swallowing, hoarseness of voice, a dry cough, often impeded respiration; and the tongue, white and coated at first, is subsequently red and swollen. At the period of eruption white spots are sometimes seen upon the mucous lining of the mouth, the representatives of the pustules on the skin, and they are apt to be developed on the tongue, in the pharynx, and in the larynx and trachea. On the eighth and three following days, the congestion of the mucous membrane is very much increased, and in the adult there is very often salivation, from the extension of the congestion to the salivary glands; at this period, also, there may be present a troublesome cough, diarrhoea, sometimes hæmoptysis, and sometimes hæmaturia.

Watched from day to day, the symptoms of variola will be

found to be as follows: from two to four days of fever, suggesting the presence of a poison in the blood oppressing the nervous system, and marked by pain in the loins; on the last day an augmentation of these symptoms, associated with redness of skin and the appearance of red puncta around the mouth, upon the forehead, and upon the face and neck. This is the first day of eruption; the puncta are developed over the entire body in twenty-four hours, are granular to the touch, and assume the appearance of minute papulæ, while the constitutional symptoms suddenly abate. From the second to the seventh day the eruption occupies the chief attention; during the third and fourth days the papulæ become vesicular at their points, the vesicles enlarge and are umbilicated, and their contents change from colourless to an opalescent lymph; on the sixth and seventh day the vesicles lose their umbilicated form, they become semi-globular, and their contents are converted into a yellow pus. On the eighth day the height of suppuration is attained; the integument is hot, red, and swollen; the mucous membrane of the respiratory passages and alimentary canal participates in the surface congestion, and the febrile symptoms suddenly rise to a serious height, constituting the secondary fever. On the ninth and following day the pustules desiccate into scabs, and the inflammation of the skin subsides; but the fever continues unabated until the eleventh day, when it also gradually declines.

Variola presents certain varieties which are founded on the number and distribution of the pustules; when they are dispersed and separate, the variety is termed *discrete*; when they are closely set together, they constitute the *coherent* variety; and where, from their great numbers, they blend with each other and form a compound pustule of considerable extent, the variety is termed *confluent*. As in rubeola and scarlatina, the fever of variola may be present without eruption, constituting a *variola sine variolis*; or the eruption may be arrested at any period of its course, in which case it is called *varicella*, or modified small-pox. At a time when the operation of inoculation was in vogue, variola admitted of division into *natural* small-pox and *inoculated* small-pox; while other terms have reference to its primary or secondary occurrence; namely, *primary* small-pox and *secondary* small-pox.

In a tabular form the varieties of small-pox may be arranged as follows:—

Variola discreta,
 „ confluens,
 „ sine variolis.

To which may be added the imperfect or aborted form of variola, namely, *varicella*; and the small-pox of the cow, or *vaccinia*.

VARIOLA DISCRETA is the mildest form or variety, nevertheless the premonitory symptoms may be very severe and out of all proportion to the eruption and secondary fever; and however discrete the eruption may be on the body in general, it is apt to assume the coherent or the confluent form on parts habitually exposed to the action of the air; for example, the face and the hands. The eruption is also later in appearance on the hands and face than elsewhere.

VARIOLA CONFLUENS.—The confluent variety presents the most severe form of symptoms of the disease, both constitutional and local. There is more sickness, often amounting to vomiting; an extreme degree of prostration of power; a more parched state of the tongue and lips; a greater amount of heat of skin; often diarrhoea, and in children convulsions. The remission of the fever is less marked during the eruptive period; and the secondary fever is delayed until the eleventh day. The eruption makes its appearance a day earlier than in the discrete form, the skin is more deeply suffused, and somewhat swollen, and the congestion of the mucous membrane more severe. And with the secondary fever there is often extreme prostration of nervous power and restlessness.

In confluent small-pox the crusts are produced on the face as early as the eighth or ninth day; they are brownish in colour and form a thick mask which remains attached to the skin for ten or twelve days; and the crusts on the body are not wholly detached until the twentieth or twenty-fifth day. When the crusts fall, the skin is left of a deep red colour, deeply pitted, and often ulcerated; the ulcerations when they heal leaving behind them irregular cicatrices.

VARIOLA SINE VARIOLIS was termed variolous fever by Sydenham, and represents the fever and mucous congestion of

variola without the eruption. It is occasionally met with during the course of an epidemic of small-pox, but its occurrence is rare.

INOCULATED VARIOLA.—Inoculation is no longer practised, but it may be interesting to note the course of the disease when excited artificially in the system by this operation. On the third day following the puncture by which the virus was introduced beneath the epidermis, the skin around the puncture is hard and dense to the touch; there is a circular blush of redness or areola, and a slight feeling of itching. On the fifth day a small papule is visible in the centre of the areola, and the areola is more decided; on the sixth day the papule has given place to a vesicle, and the vesicle is already assuming an umbilicated figure. On the seventh day the areola is tender and painful, it acquires a purplish tint, and the contents of the vesicle are becoming opaque and purulent; and on the tenth day the pustule is hemispherical and mature. After the tenth day the areola fades, the pustule desiccates, and by the fifteenth day is converted into a thick and hard scab, which remains adherent for five or ten days longer, and then falls, leaving behind it a pit (foveola) and permanent cicatrix.

The variolous fever begins on the ninth day of inoculation, and is of a mild character. Sometimes it has been known to occur without the local phenomena above described, showing that the general constitutional disturbance may be set up directly and independently of the local process.

The eruption appears on the eleventh or twelfth day, sometimes as early as the seventh, and sometimes as late as the fourteenth. It is irregular in its distribution, and generally slight; and sometimes it is accompanied by the outbreak of patches of roseola.

COMPLICATIONS OF VARIOLA.—Variola may be very mild, or it may be very severe; in its most moderate form it is sufficiently serious, therefore any complications superadded to its ordinary course must always be regarded with anxiety. The fever of *invasion* may be very intense; the rigor preceding it may be unusually prolonged; there may be acute pains in the head, in the chest, in the epigastrium, or in the loins; there may be excessive delirium followed by coma, and the patient may die before the period of eruption has been reached. The *eruptive*

stage may be accompanied with congestion of the brain, lungs, alimentary canal, or abdominal and pelvic viscera; and these congestions may prove fatal during this period. If the brain and spinal cord be attacked, there may be great restlessness, followed by twitching, convulsions, or coma. Congestion of the lungs may be manifested by bronchitis, pneumonia, and pleurisy; and of the alimentary canal by diarrhoea, dysentery, or hæmorrhage. These congestions naturally arrest the normal course of the eruption, the vesicles remain stationary, or collapse, or become distended with a sanguinolent serum.

The period of *suppuration*, always dangerous, may prove fatal in a few hours, in consequence of congestion of the brain, larynx, trachea, or lungs. There may be restlessness, with brown tongue, or dyspnoea; the skin may be wanting in its characteristic redness and tumefaction; and the pustules may become collapsed, or distended with sanguinolent fluid; or, worst of all, may lose their contents by absorption into the system. In cachectic states of the constitution passive hæmorrhages may occur at all the periods, associated with the petechiæ of purpura.

Even at the close of the disease, serious secondary affections may be set up, such as congestion of mucous membranes, hypertrophy of glands, caries of bones, inflammation of joints, congestion of the kidney and of the womb, and inflammation of the skin, sometimes assuming the form of erysipelas and furunculus, and sometimes of subcutaneous abscess or gangrene. With congestion of the kidney there may be hæmaturia or abscess; and with congestion of the uterus, menorrhagia, and during pregnancy, miscarriage.

DIAGNOSIS.—In the earliest days of sickening with small-pox, variola is not distinguishable from rubeola and scarlatina; we may have some suspicion of the nature of the illness from the knowledge of an existing epidemic; our attention may be drawn to the lumbar pains and pains in the limbs; there may be vomiting, and in children convulsions, but all the three latter symptoms are met with in scarlatina, and we can only regard them as negative signs; we may note the absence of the coryza and suffusion of the eyes of rubeola, and the absence of the strongly-marked sore-throat of scarlatina. As soon as the eruption appears, the dispersed character of the puncta is suggestive of variola, the

granular sensation communicated to the hand when passed over the surface, the redness less suffused and patchy than scarlatina, and more vivid than rubeola. The second day of the eruption decides the question without further doubt; the well-marked papulæ with vesicular heads are neither found in rubeola nor in scarlatina.

CAUSE.—The cause of variola, as of rubeola and scarlatina, is a special virus or poison, of unknown origin, but actively transmissible from person to person by infection, the most active period of infection being its pustular stage. It may occur at all periods of life, from the unborn child to the greatest age; it is uninfluenced by season or climate, but in an epidemic form more frequent in the summer and autumn than in the cold seasons of the year. As a general rule, it makes its attack only once in a lifetime, but it is occasionally met with for a second or a third time, and has been noted even for a sixth time. A subsequent attack is commonly milder than the first, but even this observation is not without an occasional exception.

PROGNOSIS.—Variola is never free from danger, even in its mildest form, and all we can feel is, that the discrete kind is less serious than the confluent. We have already pointed out the accidental complications that may show themselves at the different stages of the disease; and then we may have other accidents arising out of mismanagement or neglect, of an unhealthy constitution or personal dread of the disease. In a few words, variola demands all our vigilance and caution.

TREATMENT.—The regimen for variola is similar to that for the other zymotic fevers, rubeola and scarlatina. The patient should keep his bed; the bed-clothes should be light, but of sufficient warmth; the temperature and ventilation of the apartment should be properly regulated; the light of the sick chamber should be subdued; there should be no noise, or bustle, or talking with or near the patient; and his diet and medicines should be administered with regularity.

The diet may consist of milk, or broths, or farinaceous puddings; his drink with his meals, toast-water; and between the meals, to allay the feverish demands of thirst, toast-water, barley-water, lemonade, tamarind-water, or a weak solution of chlorate of potash (3j ad Oj). A mild purgative may be given to secure a moderate daily action of the bowels, and febrifuge salines,

such as the citrate of potash, or citrate or acetate of ammonia; or effervescent salines may be administered at regular periods.

To relieve the heat and parched feeling of the skin, the body and limbs may be sponged with hot vinegar or a solution of ammonia, and the whole surface may be anointed with simple lard, gently but thoroughly rubbed into the skin. Inunction with lard we regard as a means of great relief at every stage of the disease; it reduces the fever of the skin, and through the skin relieves the general fever and nervous irritability.

Sedatives and narcotics are undesirable if they can be avoided, but are indicated in some instances by the presence of restlessness, sleeplessness, and pain. And if the powers of the system flag, we may have recourse to wine. In a word, the therapeutic treatment of variola is purely expectant, but demanding close observation and vigilance.

The ammonia treatment, so useful in rubeola and scarlatina, is equally applicable to variola; it may be commenced with the first symptoms of invasion, and continued until the close of the disease. Ammonia seems to have the power of controlling and modifying the zymotic poisons, of restraining their increase, and chastening their action upon the nervous system, in addition to its capabilities of keeping up the powers of the constitution.

This is the method of treatment of variola when it pursues its course with regularity, while any special indications must be met by special appliances. Thus, if the system appear to be suffering from the want of a more free or speedy outbreak of the eruption, we may have recourse to warm spongings with a pretty strong solution of ammonia, or to the ammonia bath. And if there be apparent congestion of the brain or spinal cord, of the fauces or throat, of the lungs, of the stomach, or of the conjunctiva, these complications of the disease must be treated by special means adapted for their relief; for the most part by counter-irritation or the abstraction of a small quantity of blood by leeches.

Abstraction of blood is a last and worst resource; and although it may occasionally be useful and necessary, it should be avoided until the aid of counter-irritation is found to be useless. Sedatives are generally contra-indicated in the fever of invasion, but are sometimes of service during the period of the secondary fever; and the state of the bowels must be watched and regu-

lated throughout the whole course of the disease. In cerebral congestion we shall find cold pillows useful, as well as counter-irritation behind the ears. In conjunctivitis frequent sponging with a spirit lotion gives great relief. Congestions of the face and throat must be treated by the local means advised for scurvy. Sickness is often subdued by a poultice applied to the epigastrium, and the same remedy is best suited to relieve irritation and tenderness of the alimentary canal; for the latter purpose we may also have recourse to emollient injections. Hæmorrhages call for the administration of sulphuric acid with infusion of roses, and exhaustion and debility for wine and tonics.

As a local remedy there is none so well adapted to relieve heat and itching as inunction with lard, which may be used freely and at every period of the disorder, at the outset, when the eruptive congestion begins, and at the end, when the skin is undergoing exfoliation. The importance of this remedy is the greater when it is borne in mind that the worst forms of deformity left upon the skin by small-pox are attributable to the efforts made by the patient to relieve itching; indeed, it is a necessary precaution in the case of children to keep the nails cut short and the hands muffled. On the face, the itching may be held in subjection by frequent sponging with a warm decoction of poppies, of marsh-mallow, of barley, or a weak solution of common salt. This process is most grateful to the patient, particularly around the apertures of the face, and may be followed by the application of the linimentum calcis or of the benzoated ointment of oxide of zinc. The practice of puncturing the pustules and absorbing the pus with a piece of damp sponge is also useful as a means of preventing pitting.

Hebra has invented a perpetual hot-bath, in which he keeps his patient during the whole course of the disease, and reports the most satisfactory results from his method.

Various suggestions have been made from time to time with the view to induce the arrest of the eruption at its earlier stages, and prevent the evils that result from suppuration. The remedies employed for this purpose have been termed *ectrotic*; they comprehend blisters, nitrate of silver solid and in solution, tincture of iodine, sulphur ointment, mercurial plaster, and mercurial ointment. Some of these are intended to alter the nature of the inflammation of the skin; others, for example, the n-

curials, to neutralize the variolous poison, and to exclude light and air. These latter remedies have been found not only to check the progress of the eruption and mitigate the secondary fever, but also to subdue in the most perfect manner the itching and tension of the skin. Indeed, there can be no doubt of the value of some of these remedies, but it is not yet decided which is preferable for selection. Some years ago we anointed two patients with the strong mercurial ointment, with the effect of completely subjugating the eruption, but symptoms of salivation were induced. Dr. Hughes Bennett has recommended the combination of mercurial ointment with starch powder. When a mercurial plaster is made to cover a part of the skin, no pustules are produced beneath it. There seems to be little doubt that pustulation may be prevented, and with benefit to the patient; but the most suitable means of effecting that purpose have yet to be discovered.

VARICELLA.

VARICELLA, the diminutive of variola, is a mild form of eruptive fever, originating in the variolous poison; the fever is less in degree, and shorter in duration than variola, and the eruption represents one of the stages of the variolous eruption, short of perfect development. In other words, varicella, or varioloid, is a modified or aborted variola, an arrest of development of the variolous eruption, and in accordance with the stage at which the arrest of development may take place, is termed a *papular*, *vesicular*, or *pustular* varicella. Varicella is apt to occur in the course of an epidemic of variola, sometimes at the beginning, sometimes at the end; it may be met with in one member of a family, while the rest have ordinary variola; or it may occur as a secondary attack of the disease. It is less protective of the individual than variola, and somewhat less infectious; nevertheless, like its parent, it is actively contagious.

The fever of varicella is limited to the fever of invasion and fever of eruption of variola, and as the eruption never reaches the period of maturation of the pustule, the patient is saved from the violence of the secondary fever. Sometimes the constitutional symptoms are remarkable for their mildness, amount-

ing to no more than trifling indisposition; at other times they may be as severe as small-pox itself. The symptoms are identical in their nature with variola, their leading features being lassitude, shivering, nausea, uneasiness at the epigastrium, often vomiting, pains in the head, the loins, and the limbs, quick pulse, and arrested secretions. These symptoms are continued for three or four days, are relieved by the outbreak of the eruption, and gradually subside when the eruption has reached its height, namely, on the fourth or fifth day. The fever of varicella, consequently, has a duration of seven to nine days. The eruption makes its appearance in the form of red puncta, granular to the touch; the puncta are followed by papulæ, and sometimes by vesicles and pustules, which run their course rapidly, reaching their height in from two to five days. As they advance in development, an areolar disk of redness surrounds each vesicle, and as the vesicles reach their mature form, the areola contracts into a narrow brownish band. After passing its height, the vesicle or pustule dries up into a small brownish scab, which falls in a few days, leaving a slight pit or depression of a deep red or purplish hue. When the pustules are scratched, they may leave behind them cicatrices as strongly marked as those of small-pox. As in the other zymotic fevers, there is more or less exfoliation of the epidermis at the decline of the disease.

The varieties of varicella are founded on the extent to which the eruption has proceeded before arrest of development has taken place; it may stop at the papular stage, at the vesicular stage, or it may run on to the pustular stage; and the pustules may be simply conical, or globular, or they may have the umbilicated form of the perfected vesicles and incipient pustules of variola. Moreover, as we have a variola sine variolis, there may also happen a varicella sine varicellis. In a tabular form, these varieties may be arranged as follows:—

Varicella	papularis,	
"	vesicularis,	
"	pustulosa,	
"	"	coniformis,
"	"	globularis,
"	"	umbilicata,
"	sine varicellis.	

VARICELLA PAPULARIS is at the same time the most simple and the mildest form of the disease. It is a variola arrested at the papular stage, when the papulæ are dense and hard; their hardness having suggested the term *horn-pock*, by which this form of varicella is popularly known, and also the less happy synonym, "*verrucosa*." The constitutional symptoms are of the slightest kind; the cutaneous congestion fades in the course of a few days, and the papulæ gradually subside.

VARICELLA VESICULARIS, the chicken-pox of popular language, the varicella lymphatica of writers, and the varicella lentiformis of Willan, is commonly a mild disorder, especially when the eruption is discrete; but where it is confluent, the fever may be very severe. The eruption commences in the form of red spots, with a central punctum, which throws up a vesicle on the second day; on the third day the vesicle attains its complete dimensions, and is globular in figure; while its fluid contents, limpid and transparent at first, become lactescent. On the fourth day the vesicle begins to collapse and shrivel, and on the fifth and sixth it desiccates into a thin brownish scab, which falls off on the eighth or ninth day, leaving a reddish stain, but without any depression. The eruption is not, however, simultaneous, like variola, but appears on successive days, and as each fresh crop of vesicles pursues a similar course, the eruption may be prolonged for ten or twelve days, or even for a longer period, and the eruption may be seen at the same moment in all its stages; namely, congestive, papular, vesicular, desiccative, and desquamating. The vesicles are surrounded by an areola of small extent; and the development and decline of the eruption is attended often with a troublesome itching.

In the midst of the vesicles of chicken-pox, it is common to find a number of papules which retain that character throughout; while on the face the vesicles are usually attended with more vascular congestion than elsewhere, and are apt to assume the pustular form.

VARICELLA PUSTULOSA CONIFORMIS, the conical varioloid, and popularly *swine-pox*, is the conical vesicle of variola, distended with pus, and then desiccating into a scab, and falling like the crust of ordinary variola. The eruption begins by red spots, in the centre of which the vesicle is developed; the vesicle is opaque from its first appearance, and purulent on the

fourth or fifth day; on the sixth it becomes flaccid and wrinkled, and on the seventh dries up into a yellowish, or yellowish-brown crust, of a conical figure, which falls off a few days later, leaving the base deeply stained with red, and slightly pitted. The areola is considerably inflamed on the third day; the congestion increases with the growth of the pustule, and the whole eruption is attended with considerable pruritus. The duration of the eruption is eight or ten days; but when the eruption is successive it may be retarded for a few days longer.

VARICELLA PUSTULOSA GLOBULARIS.—The globular varicella, the "hives" of popular language, is distinguished by its globular form, and large size of the pustule, its dome somewhat exceeding the diameter of its base, and the latter being frequently oval in figure. The constitutional symptoms of varicella globularis are more severe than those of the preceding forms. The eruption pursues the usual course, beginning by spots and central papulæ, the papulæ becoming vesicular and opalescent on the second or third day, and reaching their full development on the sixth day, when they are completely pustular, and surrounded by an inflamed areola. On the seventh and eighth day they show signs of collapse, they become wrinkled, and desiccate; and on the ninth day are changed into brown scabs, which fall off during the three following days. The duration of the disease is ten or twelve days; but when successive crops of eruption appear, it may be prolonged for a few days further.

Varicella globularis, like the other varieties of varicella, is commonly associated with a sprinkling of the other forms, and on the face is apt to assume a more decided variolous character than elsewhere.

VARICELLA PUSTULOSA UMBILICATA is the most fully developed of the varicellæ; its fever of invasion more resembles that of ordinary variola, and the eruption makes its appearance on the third or fourth day of the fever. The spots, with a papular centre, resemble the other forms; on the second day the papulæ are vesicular at their points; and by the fourth day are converted into large vesicles, flattened and indented on the summit, in a word *umbilicated*. During the fifth and sixth day the contents of the vesicles become purulent, and reach their highest point of development, namely, umbilicated pustules. As in variola, the process is more active on the face than elsewhere, and by the

period of completion of pustulation on the general surface of the body the pustules on the face have commenced to desiccate. On the seventh day desiccation is universal, and on the eighth day the pustules are converted into brown crusts.

Desiccation of the pustule begins in the centre, and gradually extends to the circumference; the crusts fall off on the tenth or eleventh day, and leave behind them slight depressions and a deep red or livid stain that lasts for several weeks, but there are no permanent pits or cicatrices excepting where the pustules have been disturbed in their course by scratching, and have fallen into a state of ulceration.

Like the other forms of varicella, the umbilical vesicles of this eruption are more or less intermingled on various parts of the body, with the papulæ, the vesiculæ, and the pustulæ of the eruptive varieties.

VARICELLA SINE VARICELLIS, or varicellar fever, is analogous in principle to rubeola sine rubeolis and scarlatina sine exanthemate; there is a moderate amount of fever, sometimes very slight, without any eruption of the skin. Cases of this kind are rare, but they are occasionally met with in the course of an epidemic of variola; the extreme mildness of the infection is sometimes due to vaccination, sometimes to a previous invasion of small-pox, and sometimes to insusceptibility on the part of the individual. **DIAGNOSIS.**—Varicella is distinguished from rubeola by the absence of coryza and cough; from scarlatina, by the absence of sore-throat, and from variola by the mildness of the constitutional symptoms and the subdued character of the eruption, which is shorter in its course, imperfect in its development, and leaves no secondary fever, and leaves behind it slighter pits and cicatrices.

CAUSE.—The cause of varicella is the variolous virus, the mitigation in its symptoms being chiefly due to the insusceptibility of the subject. In a family or in a community some of the members may have variola and some varicella, while a patient with varicella is capable of communicating variola to another. Varicella is more apt to recur than variola, and the constitution is less protected against the infection of small-pox.

PROGNOSIS.—More favourable than variola; but fatal cases of varicella, particularly of the umbilicated pustular kind, are not without example.

TREATMENT.—The same as for variola. There should be ~~no~~ lack of care or watching from the supposed mildness of the nat~~ure~~ of the disease, as at any moment complications may arise, ~~and~~ the disorder assume a serious character.

VACCINIA.

VACCINIA, or cow-pox, is the variola of the cow; it is a febrile eruption, occurring on the udder and teats of the animal, ~~and~~ spreading by infection to other members of the herd, and ~~by~~ contagion to man. Its identity with small-pox is shown by ~~its~~ occasional origin from contact with variolous patients or ~~the~~ fœmites of variola, but the disease, when transmitted to man, is much milder than the human small-pox. Variola is also known to exist in the sheep, in whom the eruption is more general ~~and~~ more severe than in the cow.

In natural vaccinia occurring in the cow the udder and ~~teats~~ become hot and tender; the surface is uneven, and pimples ~~rise~~ up as big as the hemisphere of a pea. In three or four days ~~the~~ papulæ are as large as a horse-bean, and vesicular on the ~~sum-~~mit, and the vesicles gradually fill with an amber-coloured viscid fluid. The vesicles are conical, oval, or globular at first, ~~but~~ subsequently umbilicated, and bluish and pearly in appearance, and desiccate from the centre to the border, forming hard, dark-brown crusts, which at their fall leave a deep indentation or ~~p-~~pit, that remains ever after. Mr. Ceeley, of Aylesbury, whose ~~name~~ is identified with the history of variola vaccina, has counted ~~as~~ many as sixty pustules on a single udder.

The milkers of the diseased cows are apt to receive the disease by contact; the eruption occurs on the hands and on parts of the body which are touched by the hands; red spots are ~~first~~ seen; these spots become papulæ, which are hard, conical, deeply rooted, and of a dark crimson or purplish hue. The cuticle of the papulæ is raised by effusion into greyish or bluish vesicles; the vesicles become umbilicated, and enlarge by the ~~circu-~~umference; the centre of the vesicle assumes a yellowish tint, ~~and~~ an inflamed areola spreads around its base. The inflammation accompanying the eruption is sometimes so severe as to ~~cause~~ sloughing, and excite irritative fever; sometimes it gives ~~rise~~ to

subcutaneous abscess, and sometimes to inflammation of the lymphatic vessels and glands.

The easy transference of the virus of variola vaccina to man and immunity from small-pox of those who had been the subject of the disease, suggested to Jenner the practice which, since his day, has been attended with such marvellous results, and which has converted variola into a mild and manageable, and almost harmless disease, namely, the artificial inoculation of the vaccine virus; in a word, vaccination.

The labours of medical men practising in counties wherein cows are assembled in great numbers, have given us the results of vaccinating children directly from the cow; they have furnished us with supplies of vaccine lymph from the original source, and they have taught us in what manner to test the lymph at present in use. It would appear that direct vaccination from the cow is too severe for ordinary practice; that the lymph is too active until it has been passed through a succession of children, and has reached several removes from the original source; nevertheless, the practicability of a direct return to the cow, in case the lymph in use should have become weakened in its influence, has been fully proved. And on the other hand, it has been satisfactorily shown that the vaccine lymph, with proper care, will retain its complete power for a considerable number of years, and possibly for ever.

Lifting the veil from nature's operations, we are enabled to regard, firstly, variola, the destructive scourge of mankind, with the sole redeeming fact of its occurrence but once in a lifetime; and secondly, variola vaccina, the small-pox of cattle, transmissible to man, mild in its operation, capable of taking the place of variola, and insuring to man all its immunity from a second attack of the disease. In other words, variola vaccina conveyed to man is as protective of the constitution against small-pox as is variola humana. And if it be not absolutely protective, the reason is simple, variola humana is not absolutely protective; but it may be fairly argued that when variola humana is absolutely protective, then also will variola vaccina be the same.

VACCINATION.

VACCINATION is the remedy for one of the natural liabilities of mankind, namely, variola, and is therefore performed at an early age of infancy, the third to the seventh month. It may be practised at any period of life; and in the event of the existence of an epidemic of variola at an earlier age than that above stated; but to secure its success, it is important that the subject should be in health, and able to maintain a certain tranquillity for the ten or fourteen days during which the leaven is pervading the constitution. Hence, an eczema, as betokening an unhealthy condition of the system, is a reason for deferring the operation; and in adults a certain preparation of the body, if not absolutely necessary, would at least be judicious.

When the important results of this operation, so trifling in itself, are duly considered, the necessity for caution cannot be too strongly urged. Vaccination is protective only when the operation has been properly performed, and when the constitutional and local effects of the inoculation have been normally and perfectly developed. And the importance of due care is further evinced by the fact that an imperfect vaccination is no more protective than its neglect altogether.

The operation of vaccination consists in bringing into contact with the derma a portion of lymph obtained from the vaccine vesicle when properly matured, namely, the vesicle of the eighth day; and this object is effected by pressing the point of a lancet obliquely through the epidermis until it reaches the surface of the papillary layer. If the operator have the opportunity of vaccinating from the ripe vesicle itself, he moistens the point of the lancet with the fresh lymph before introducing it into the epidermis; and if he vaccinate from lymph dried on a slip of glass, he breathes on the glass to moisten the lymph, and collects a little on the point of the lancet previously to inserting the instrument into the skin. The part of the body commonly selected for the operation is the outer side of the arm, a little below the joint of the shoulder; and it is customary to make three oblique punctures in the manner described. When the operator has made the three punctures, each with his medicated blade, he endeavours to insert as much of the lymph into the openings as possible; and if he have ivory points, he inserts ar

ivory point previously dipped in lymph into each of the openings. The ivory points are left in the wounds for a few seconds, and then withdrawn, and a slight oozing of blood is allowed to dry over the openings. The operation is now complete, and the operator is careful that the dress of the child is so arranged as not to rub against the punctures. Sometimes the operation is performed on both arms to secure a greater number of chances of success; but this is not necessary, and it has the disadvantage of invaliding both sides of the infant, and interfering with its nursing; we should therefore advise that the procedure be confined to a single arm, the left being generally the most convenient.

As the purpose of vaccination is simply the allocation of the vaccine lymph upon the abraded skin, the abrasion may be effected in any manner the most convenient to the operator. The instrument may be a lancet, sharp or blunt, or a needle; the wound may be a puncture, a number of punctures, a number of scratches, or the raw surface of a blister. Indeed, if the lymph be fresh and other conditions favourable, virus may be absorbed through the epidermis without any abrasion at all.

On the *third* or *fourth* day following the operation, a blush is apparent at the seat of the puncture, and the latter is hard and slightly raised, so as to form a papule; on the *fifth*, *sixth*, and *seventh* day, the epidermis covering the papule is raised into a vesicle which is whitish, pearly, round or oval in figure, and depressed in the centre or umbilicated. The *eighth* day is the day of maturity of the vesicle; it is pearly in hue and umbilicated, and in structure is composed of an assemblage of minute cells (multilocular), each filled with transparent lymph. On the *ninth* day the umbilication is lost, the vesicle is evenly flattened or convex, and on this and the two following days its contents become purulent. On the *twelfth* and two succeeding days, the vesicle dries up into a crust; the desiccation begins in the centre and spreads to the circumference; and on the *fifteenth* and two following days the crust shrinks and forms a black scab, which separates gradually from the skin beneath, and falls off on the *seventeenth* day.

The EIGHTH-DAY VESICLE is the acme of vaccinia; it is the ripe fruit of the operation, it is the moment when the lymph is best suited for transmission, and it is the "pearl upon the rose"

of Jenner, pearl-like in its hue, and seated upon a ground of vivid redness, that forms an areola around its base. This areola, a few lines in breadth on the eighth day, spreads during the following days to the dimensions of two inches or more; it is hard, tumid, painful, and sometimes sprinkled over with small vesicles; sometimes the inflammation attacks the axillary glands, and sometimes represents a kind of centre, from which roseolous blotches are thrown off upon the neighbouring part of the arm or trunk of the body (roseola vaccina).

The progress of the local inflammation around the base of the vesicle is accompanied with the change of the contents of the vesicle from lymph into pus: this is the pustular period of vaccinia; it is also the period when constitutional symptoms of irritative fever are apt to be developed, the fever corresponding with the secondary fever of variola, and comprising the ninth, tenth, and eleventh days. On the twelfth and two following days, the areola contracts in dimensions, and subsides in redness and swelling; and before the commencement of separation of the crust takes place, namely, on the fifteenth day, is usually gone.

The fall of the crust brings into view a depression of considerable depth, the floor of the depression being marked by small pits (foveolæ); this is the foveolated cicatrix characteristic of vaccinia, and remains permanent for the rest of life. Where, in consequence of mismanagement of the arm, or irritability of constitution of the child, ulceration has occurred during the inflammatory period of the vesicle, the cicatrix is irregular, and resembles that of an ordinary ulcer; but when the foveolated cicatrix does not exist, it may be inferred that vaccination has proved a failure.

The constitutional symptoms accompanying vaccination are commonly very slight: a little uneasiness, restlessness, or irritability of temper on the part of the child, sometimes associated with a suspension of the secretions, and dry and hot skin. These symptoms, when they exist, accompany the pustular period of the vesicle, beginning on the ninth day, and lasting for two or three days.

As to the *cause*, *diagnosis*, and *prognosis* of vaccinia, no question in particular arises; but in reference to the *treatment* of the individual in connection with vaccination, a few words may be

said. The functions of the body should be in a healthy state at the time of the operation, and all excitement avoided during the course of the process, which, it must be remembered, is pathological in its nature. Infants bear the operation and its consequences better than adults, because they are in a more healthy and a more natural condition; because, also, their diet is unexciting and unirritating. Adults, to obtain the same results as appertain to infants, should endeavour to imitate them in their healthy functional condition, their unexciting diet, and their repose and tranquillity. Where these objects have not been kept sufficiently in view, fatal results have sometimes accrued, and it has been wrongly argued that because vaccination is so slight in the case of the feeble infant, it must therefore be slight in the powerful frame of the strong man.

CHAPTER XVI.

SYPHILITIC AFFECTIONS.

SYPHILIS is a blood disease, originating in a special poison-virus engendered by sexual intercourse, and communicated by contact or contagion. Six or eight days intervene between the contact and the manifestation of morbid action in the poisoned part, and six or eight, or twelve weeks, between the commencement of the local disease and certain constitutional symptoms which are set up in the economy. The morbid process taking place in the part is termed the *primary* disease; the general, or constitutional symptoms are the *secondary*, or constitutional disease; while the appearance of the disease at a later period, namely, after several years, is termed *tertiary*.

Syphilis is, therefore, local and primary, or it is constitutional and secondary, or tertiary. Primary syphilis commonly shows itself as an ulcer; but secondary syphilis is a fever, in which the whole constitution takes part; and tertiary syphilis is reduced to a local character by the absence of constitutional symptoms.

Constitutional or secondary syphilis, or syphilitic fever, is manifested by weariness, depression of spirits, pains in the back and in the limbs, a quick pulse, white tongue, nausea, chilliness of surface, followed by profuse perspiration. These symptoms present much irregularity both in degree and in order of succession, and sometimes are absent; but they are quickly succeeded by another set of symptoms which are more pathognomonic; for example, rheumatic pains, neuralgic pains, sore throat, eruption on the skin, and sometimes inflammation of the eyeball; the organs principally affected in syphilitic fever being the mucous membrane of the fauces, the skin, the nerves, the fibrous tissues, and the eyeball; and it is a matter of importance to distinguish these affections from a zymotic fever, such as scarlatina, rubeola, or variola; from common neuralgia, from rheumatic fever, and from ordinary iritis.

It is not impossible that all these symptoms may be present

and be a mere augmentation in development of the papulæ of the preceding variety, or it may be later in its appearance, and assume a chronic and more solid character, may spread by its circumference, and finally take on a process of ulceration. The earlier and the simpler forms follow the type of papulæ in their arrangement; they may be small and corymbose or separate and dispersed, or they may be large and isolated, like the spots of roseola maculosa, or they may be aggregated into patches of considerable extent, like those of alphas diffusus. Again, they may be smooth, or they may exfoliate on the surface, leaving a frill of cuticle around their base, or they may produce scaly coverings after the manner of the tubercles of alphas, and be liable to be mistaken for that eruption. Again, they may be stationary or they may enlarge by the circumference, sometimes without change in the centre, and sometimes with subsidence in the centre, like alphas circinatus. And finally, they may form scales, which fall off and are reproduced, or they may split across their border into fissures, and produce crusts by the desiccation of the secretions of the chaps, or they may take on the process of ulceration, and be converted into raised blotches of variable extent, and for the most part circular, and partly tubercular and partly ulcerated. Sometimes the ulceration is the most prominent feature of these tubercular syphilodermata; and they are termed *ulcera serpiginosa*, from their creeping quality; and *horseshoe ulcers*, from their frequent habit of healing on one side of the circle, while they creep onwards by the other. The ulceration of these tubercles is generally superficial, shearing, as it were, the papillary surface of the derma in its course, and forming narrow and linear ulcerations of a crescentic form, and sometimes of considerable length. It is to the circular centrifugal patches which desquamate on the surface and grow by the circumference while they subside in the centre, that the term *lepra syphilitica*, or *psoriasis syphilitica*, has been improperly applied.

TUBERCULA MUCOSA.—In parts of the skin kept moist by secretions, either accidentally, as in the axillæ and groins, or on and around the pudendum and anus, prominent growths are apt to form, which are termed *mucous tubercles*. The cuticle or epithelium covering them is white and corrugated; it is sometimes rubbed off, and excoriations are produced, and at other times the tubercles become ulcerated, and are very painful and

troublesome. Occasionally, and under the same conditions, hypertrophy of the papillæ takes place, and the growths have the character of warts or vegetations.

SYPHILODERMA VESICULOSUM and SYPHILODERMA PUSTULOSUM may be taken together, for the serum of the vesicle very speedily passes into the state of pus, and not unfrequently is purulent from the beginning, the vesicle, or rather bleb, and the pustule being the usual form of commencement of an ulcer to which the term *rupia* is commonly given.

RUPIA begins like an ecthymatous pustule; it frequently has a hardened base, and is deep red or livid in colour; on its base a bleb containing a sanguinolent ichor or seropurulent fluid is raised, and the contents of the bleb dry up into a hard, black scab; sometimes the bleb breaks, and a crust is formed by the morbid secretions of its base; the crust is black and rugged, and when removed is found to conceal an unhealthy-looking livid ulcer, with thin and sometimes vertical edges, and an uneven base, the secretion from the surface of the ulcer being a sanguinolent ichor or a semi-purulent fluid. This is *rupia simplex*, and its crusts and ulcers may be more or less generally dispersed over the body and limbs; sometimes they occur on the head, and sometimes on the face, but are most frequently met with on the lower limbs.

Rupia has, besides, another mode of development; it begins as a large pustule, or pustular bleb, surrounded by a narrow, inflamed margin; in a short time the bleb, creeping onwards by its circumference, takes in the inflamed margin, and another inflamed margin is added outside; this latter is encroached upon in its turn, while another and another is formed, to meet with a similar fate; and so, by successive steps, the disease enlarges in extent, until it attains the diameter of half an inch to one or two inches. As the process is slow and regular, the pus contained within the bleb dries into a conical crust, and the cone gradually increases in breadth by its base, while its apex is more and more raised. This conical crust has been compared not inaptly to a limpet shell, and has been termed *rupia prominens*; while a broader but less elevated form of crust has in like manner been compared to the shell of an oyster.

When the crusts of rupia are removed, they are found to cover a deep ulcer, filled with a pale-coloured pus, and discharg-

ing a viscous and transparent secretion, often in considerable abundance; the edges of the ulcer are commonly thin and undermined, but sometimes thick and vertical, and occasionally have a phagedænic character, while the surface of the ulcer is uneven and smooth, or sprinkled over with unhealthy granulations.

SYPHILODERMA ULCEROSUM.—Suppuration may be present in syphiloderma either as a formation of a pale-coloured pus in the summit of the pimples of syphiloderma papulosum, or it may be associated with vesication in the various forms of rupia. The disposition to the formation of pus, in other words, the pyogenic tendency, is indicative of a debilitated and irritable or cachectic state of the constitution; and it is under the influence of this constitution that large and deep ulcerations occur in syphilis, and that still more serious and destructive form of ulceration which is termed phagedæna. Phagedæna in an ulcer is indicated by red, thick, and hard edges; by absence of secretion, which makes them look seared; by the frequent presence of black oozing points of blood upon their surface; by their vertical section, and by the absence of granulations. In the course of a few hours these edges disappear as if they had been dissolved, or, as the term implies, as if they had been eaten away.

But ulceration, besides being the result of a cachexia, may be determined by a local morbid action present in the diseased part. This morbid action is commonly associated with the tubercular form of syphilis, and then we perceive the curious phenomenon of a broad circular patch ulcerating along its growing edge, producing very little secretion, and the secretion so produced desiccating into a thin, irregular, and broken crust. Of this kind, also, as distinguished from the suppurating and the phagedænic ulcer, is the so-called horse-shoe ulcer, which creeps along the surface, eats off the upper surface of the derma in its course, is excessively painful, and heals upon one side while it moves onwards in a curve, like the long red streak of a line of soldiers, in its invasion of new ground.

SYPHILODERMA SQUAMOSUM belongs to a late period of syphilis, commonly to the tertiary period, and is the form of eruption most frequently met with in the palm of the hands and sole of the feet, syphiloderma palmare et plantare. In the latter situations it is generally described under the incorrect name of psoriasis palmaris and psoriasis plantaris. The characters of

syphiloderma palmare et plantare are, heat, redness, and thickening of the derma, accompanied with cracking and exfoliation of the cuticle in ragged layers, and often with fissures of the skin, which sometimes bleed, and are frequently painful.

Syphiloderma palmare occasionally presents a tubercular and excentric character, creeping on by the circumference while it subsides in the centre, until it covers the entire palm, sometimes healing in the centre, and retaining an annular figure, and sometimes assuming the attributes of syphiloderma squamosum, bounded at the circumference by a prominent border.

As a rule, the energy of the syphilitic fever or constitutional symptoms is great in proportion to the brevity of the time that has elapsed since the occurrence of the primary disease. A first attack is more severe than the second; the second than the third; and so on, until, after a time, when the so-called tertiary period is established, the syphilitic fever is altogether lost. The same remark applies to the more prominent of the concomitant symptoms of constitutional syphilis; the sore-throat, the neuralgia, and the rheumatic pains, become less and less marked in the progress of time, until they also may cease. With an erythematous syphiloderma we may expect the fever to be more decided than with a papulous or a pustular syphiloderma, while in some of the later forms of tubercular syphiloderma and in squamous syphiloderma, there may be but a trifling degree of congestion of the fauces, or none at all, and no neuralgic or rheumatic pains. Nevertheless, we always inquire as to the presence or absence of these symptoms.

There are three other signs of constitutional syphilis that demand our notice, and are often found to be useful elements of diagnosis; namely, depression of spirits, a discoloured or dirty or muddy skin, a peculiarity of colour of the eruption, and a tendency to anæmia. The depression of spirits is occasioned by a lethargy of the whole nervous system, caused by the presence and accumulation of the poison in the blood. The same state of nervous system causes a suspension of sanguification; the patient becomes anæmic, and at the same time the existing red particles of the blood are destroyed, and degenerate into pigment matter. To the accumulation of pigment in the blood and its elimination by the skin is to be referred the dirty yellow and greenish hue of the cutaneous surface, and the yellow-brown

tints of the eruption, which have received the name of "copper-colour," as well as the deep red-brown and melasmic stains or maculæ, which are left upon the skin after the eruption has disappeared.

The poison of syphilis, therefore, like all other blood poisons, is a depressing agent, operating primarily upon the nervous system, secondly on the blood, and thirdly on the surface tissues; for example, the mucous membrane of the fauces, the skin, and, at a later period, the tongue and buccal mucous membrane. It is through the medium of the nerves, also, both trophic and sensitive, that the poison is enabled to set up morbid action in the eyeball, and in the periosteum and bones.

SYPHILODERMA INFANTILE.—As in adults, syphilis in infants attacks by preference the surface tissues of the body, both mucous and cutaneous; sometimes the evidences of syphilis are apparent at the moment of birth; at other times they occur a few weeks after birth, while in most instances a syphilized ovum becomes an irritant to the womb of the mother, and is expelled at its embryo or foetal period without reaching the full term. In syphilis infantilis occurring at birth, the cuticle is apt to separate from the cutis, as if decomposition had occurred; and if the child be living, the blood oozes freely from the denuded derma. The mucous membrane of the eyes, the nose, and the mouth, are in a similar state, desquamating and bleeding, and the tongue and buccal membrane are studded with aphthæ. Not unfrequently there is also soreness of the anus, as if the mucous membrane of the body were affected from end to end.

When the syphiloderma comes on after birth, the form which it assumes is that of erythema, in large blotches, and of the brownish-red hue or copper-colour above described. The eyelids are clogged with mucus, the nostrils are loaded with secretion, the tongue and mouth are aphthous, the commissure of the lips cracked, and the fauces and trachea filled with a rattling phlegm.

DIAGNOSIS.—The detection of the syphilodermata is founded on the appearance of the eruption and the concomitant constitutional symptoms. The redness of the eruption is peculiar, a brownish or yellowish red, a tint of colour different from ordinary inflammation, and commonly designated by the vague expression "copper-colour." The general complexion of the

skin is dirty or muddy, and sometimes a yellowish or greenish brown. Then there is congestion of the fauces, sometimes ulceration, depression of spirits, profuse and foetid sweats at night, an anæmic conjunctiva, and oftentimes pain, sometimes neuralgic and sometimes rheumatismal. The presence of all these signs and symptoms together would tend to decide the nature of the disease authoritatively; but they observe much irregularity, and some may be absent; hence the diagnosis of syphilitic eruptions offers considerable difficulty, and particularly, as we have already seen, from being identical in type with other eruptions of the skin.

Syphilitic roseola is very like common roseola; in both there is congestion of fauces and a muddy complexion of the skin, and both are attended with moderate febrile symptoms. The diagnosis, therefore, requires the corroboration to be derived from a knowledge of the pre-existence of syphilitic disease. This observation applies to the punctated and corymbous variety of the eruption, and also to the annulate kind. But the roseola maculosa presents the character of the syphilodermata in a more decided form; the redness is more characteristic, and it leaves behind it well-marked brown stains upon the skin.

Syphiloderma papulosum may be mistaken for eczema papulosum or lichen; but the papulæ are generally larger than in the latter complaints; they are frequently corymbous, and there is an absence of pruritus. When to these differences are added the congested or ulcerated fauces and one or other of the constitutional symptoms of syphilis already indicated, there can no longer be any doubt. It may be well to note in this place that pruritus is a very important sign of difference between syphilitic and other eruptions, and as a general rule is absent in syphilis.

Syphiloderma tuberculosum may be a mere exaggeration in size of the papulæ of syphiloderma papulosum, in which case it is unlike every other eruption of the skin, or the tubercles may be large, and either prominent or flat, and suggest the idea of alphas. Indeed, as we have seen, one form of tuberculous syphilis has been termed lepra syphilitica and psoriasis syphilitica, a barbarous nomenclature, but sufficient to show the near approach in resemblance between syphilitic eruption and alphas. The form in question grows by the circumference, like alphas circumatus, while it subsides and perhaps heals in the centre, and the

prominent circumferential ridge produces and casts off a succession of epidermic scales. When, however, ulceration manifests itself in the tubercles, all relation to alphas ceases, for the latter never ulcerates, although it may sometimes crack and bleed. The ulcerating forms of syphilitic tubercle, however, bear some resemblance to lupus, both the non-exedent and the exedent variety; and this resemblance has been indicated by the old term herpes exedens, applied indiscriminately to both. To distinguish between ulcerating tubercular syphilis and lupus we must bear in mind the special characters of the respective diseases.

Syphiloderma vesiculosum vel bullosum reminds us of pemphigus; but the bullæ are small, and their contents soon become purulent; their base commonly ulcerates, and the secretions dry up into the black, thick, and rugged crusts of rupia simplex, or the conical or oyster-shell-shaped crusts of rupia prominens.

Syphiloderma pustulosum is altogether unlike impetigo, although it may be mistaken for ecthyma; but the hardened and inflamed base of ecthyma is absent, while the disposition to ulceration is greater.

Syphiloderma ulcerosum is either superficial or deep in the corrosion of the skin; both produce crusts from the desiccation of a morbid secretion; the former is extremely sensitive, but the latter, although more extensive, is less tender and painful, and is commonly associated with cachexia. As already observed, the superficially ulcerating forms of tubercular syphiloderma may be mistaken for lupus, and particularly that variety which has been named herpes serpiginosus; the common synonym of lupus being herpes exedens.

Squamous syphiloderma, as it occurs on the palms of the hands and soles of the feet, is commonly termed psoriasis palmaris et plantaris, and is confounded with true psoriasis, or eczema palmare. The diagnosis is often difficult, as syphiloderma palmare belongs to the tertiary period of syphilis, and all the other symptoms of syphilis may be absent. Our inquiry should rather take the direction of determining whether the disease may not be of eczematous origin, by a search for concurrent symptoms. In syphiloderma palmare we must remember the excentric growth of the eruption, and the frequent presence

of a raised margin all around, or at some point of the circumference.

Syphiloderma infantile is so unlike all other affections to which the skin of infants is liable, that it can hardly be mistaken for anything else; and then the state of the mouth, the nose, the eyes, and the anus, is pathognomonic of infantile syphilis.

CAUSE.—The cause of syphiloderma is a specific poison, and its operation upon the skin probably associated with the function of elimination. Its admission into the system is effected by absorption through the tissues of the skin, and without the necessary presence of abrasion; and it may exist in a state of solution in the mucous secretions as well as in the pus of an ulcer. Having entered the tissues for a certain depth, it may act on the surface, and produce the local lesion termed *primary* disease; or, like other poisons, it may pass directly into the blood, and saturate the entire system, producing a constitutional affection commonly termed *secondary* disease. And in the next place, it may abide in the system in a latent form for a number of years, and manifest its presence from time to time by partial eruptions, as we see illustrated in *tertiary* syphilis.

These are some of the phenomena of this remarkable poison; but it has many others. Like the vaccine poison, it is chased and mitigated by its continuance in the human system, and year after year becomes weaker in its influence, until its power upon the individual is entirely lost. It may remain still communicable to another person; but in its modified state, produces only a modified disease: hence another source of variety of syphilodermata. They are not only modified in the individual by the long residence and naturalization of the virus, but they are modified also by their origin from a modified or secondary poison in lieu of a primary poison.

Similar modifications also take place in the transmission of the poison, primary or secondary, from the father to the mother, and from the mother to the offspring; or, as is believed by some, from the father to the ovum, and from the ovum to the mother. In spite, however, of the modifications which take place in the power of the virus, the ovum is commonly blighted by its reception, and abortion ensues.

PROGNOSIS.—The prognosis of syphilodermata is favourable;

they are very amenable to treatment, and with the aid of judicious treatment always terminate satisfactorily. They are much more manageable than syphilis of the mucous membranes.

TREATMENT.—The treatment of syphiloderma at its early and febrile period must be antiphlogistic; the digestive organs must be attended to, and the secretions set right; very soon the patient will bear the compound decoction of sarsaparilla, to which may be added two or three grains of the iodide of potash, three times a day, and a Plummer's pill at bedtime. This treatment supposes the patient to be under the necessity of keeping his bed; but if he be sufficiently well to be up, the sarsaparilla and iodide of potassium may be commenced at once, with the Plummer's pill, and after the third day, the pill may be taken night and morning.

In a less severe form of the disorder, it may be sufficient to order a dose of the compound decoction of sarsaparilla, with five grains of the iodide of potassium, twice in the day, and one grain of the protioduret of mercury, with three of extract of conium, at bedtime. At the end of a week the pill may be taken night and morning; and at the end of ten days the iodide of potassium should be increased to seven grains and a half the dose; while in another period of ten days, the dose of the iodide of potassium should be raised to ten grains.

In pursuing this treatment it is necessary to see that the iodide of potassium produce no unpleasant feelings in the head and nervous system of the patient; if such should occur, it must be stopped; and also that the mercury do not produce ptyalism. In the latter case the dose of the mercury must be reduced, so as to confine its action to a moderate tenderness of the gums. And in the case of being obliged to discontinue the iodide, its use may be resumed, if necessary, at the end of two or three weeks. Many years ago we pointed out the fact that iodide of potassium loses its beneficial influence on the system in syphilis if taken at the same dose for a longer period than ten days, and that, to secure its continued good effect, the dose should be augmented every ten days. When the dose becomes too large to be safe, and acts injuriously on the nervous system, it should be stopped at once, and after an interval or fallow of two or three weeks it may be resumed again as before. In this way we obtain all the curative effects of the iodide of potassium in a

DECOCTUM ZITTMANNI FORTIUS.

℞ Radicis sarsæ concisæ ℥ xij.
 Aquæ fontanæ libris lxxii.

Digest for twenty-four hours; then add, tied up in a piece of linen:—

Sacchari albi
 Aluminis aa 3vj.
 Calomelanos 3ij.
 Hydrargyri bisulphureti rubri (cinnabar) . . . 3j.

Simmer down to twelve quarts; towards the close of the ~~im~~mering add:—

Seminum anisi, contus:
 Seminum fœniculi, contus: aa 3ss.
 Foliorum sennæ 3ij.
 Radicis glycyrrhizæ, concisæ 3iss.

Press and strain, and, after standing until cool, decant the clear liquid, and bottle twelve quarts.

DECOCTUM MITIUS.

To the dregs of the strong decoction add:—

Radicis sarsæ, concisæ ℥ vj.
 Aquæ fontanæ libris lxxii.

Simmer down to twelve quarts, and towards the close of the ~~te~~ simmering add:—

Corticis fructûs citri, contusi,
 Cardamomum minorum, contus:
 Radicis glycyrrhizæ, concisæ aa 3ij

Squeeze and strain, and, after standing until cool, decant the clear liquid, and bottle twelve quarts.

One bottle of the stronger decoction is to be taken *warm*, before twelve o'clock in the day; and one bottle of the weaker decoction *cold*, between twelve o'clock and bedtime. It has been suggested that the mercurial salts contained in the linen bag are useless, as undergoing no solution in the liquid; this may be the

, but we have fancied that the remedy answered better when prepared in accordance with the old formula than in a mutilated one. The treatment is commenced with an active purge of jalap (gr. iv) and colocynth (gr. viij); and if the action of the bowels be sluggish, the purgative should be repeated in the evening of the fourth day.

The *local* treatment of the syphilodermata is of inferior importance to its constitutional treatment. The eruption may be washed in tepid water with the juniper-tar soap, and afterwards dressed with a lotion of the bichloride of mercury and bitter almonds. In chronic forms of tubercular syphilis inunction with mercurial ointments, and particularly with that of the ammonio-iodide, is useful, as also is the application of a mercurial plaster.

The crusts of rupia should be softened by the water-dressing and removed, and the ulcers dressed with the ceratum resinae, or with the red precipitate ointment; and a similar treatment is applicable to the ulcers of all denominations; while, on the other hand, water-dressing, if long continued, or poultices, are generally injurious, by softening and weakening the tissues of the skin. Where there is much secretion from the ulcers, the benzoated ointment of oxide of zinc, or the calamine ointment, may be found to be useful auxiliaries.

Syphiloderma squamosum should be well anointed with the ammonio-chloride of mercury ointment, which should be thoroughly rubbed into the skin, or with a mercurial glycerole containing four or five grains of the bichloride of mercury to the ounce. Mucous tubercles are best treated by washing with the juniper-tar soap twice or three times a day, and subsequent dressing with the bichloride lotion in bitter almonds, a strong decoction of plumbi lotion, or the application of the benzoated ointment of oxide of zinc.

CHAPTER XVII.

LEPROUS AFFECTIONS.

LEPRA and ELEPHANTIASIS are terms applied to the same disease, the ancient leprosy, a disease which in former times spread over the entire world, which, arising in Egypt, travelled eastward and westward, and at the present moment is still active in the hot countries of the tropics, and in the cold regions of the north. It is interesting to us as having once had its abode in Great Britain, and as existing at the present time in some of our colonies, for example the East and West Indies, the islands of the Indian Ocean, and notably in the Mauritius. From these sources the disease is occasionally imported to this country, and therefore demands our attention.

Lepra is a blood disease, and in this respect resembles the zymotic affections and syphilis, and it also resembles these diseases in some of its phenomena. The origin of the disease is doubtless an animal poison, but the source and nature of the poison are unknown; it is endemic but not contagious, and not hereditary. The virus of lepra operating on the system, gives rise to changes in the blood, which affect chiefly the surface tissues of the body, and the nervous system; in the former causing partial congestions with infiltration, resulting in the production of tubercles and ulcers, and in the latter loss of innervation and sensation.

These two modes of manifestation of the virus lepra are the basis of a division of the disease into two varieties or kinds, namely, LEPRA TUBERCULOSA and LEPRA ANÆSTHETICA. The former of these, besides its specific tubercular character, always exhibits more or less deficiency of sensation; and the latter also evinces changes in the skin, but of an atrophic rather than of a tubercular nature.

LEPRA VEL ELEPHANTIASIS TUBERCULOSA.—The terms "tubercular" and "anæsthetic" draw our attention especially to the particular mode of manifestation of the disease; to the skin in the one case, to the nervous system in the other; but we must

also remember that the disease before us is a blood disease, and as such is preceded and accompanied by certain constitutional symptoms. The invasion of lepra is always insidious; the constitutional symptoms at its beginning may be so slight as to escape attention altogether, and the first intimation of the existence of the disease may be the presence of erythematous spots upon the surface, or incipient tubercles, or a degree of numbness or insensibility of the skin. The disease does not invade at once, but by successive attacks, recurring at longer or shorter intervals, sometimes of a few weeks; each succeeding attack is accompanied by an augmentation of the cutaneous affection, and after a time the constitutional symptoms become palpable, and more or less severe.

The *constitutional symptoms* of lepra are like those of other blood poisons, but milder in their character; there is a sense of lassitude, with languor, depression of spirits, somnolency, heaviness of limbs, and disinclination for exercise and society; sometimes nausea and frequently chills succeeded by febrile heat. These symptoms continue for a variable number of days, and subside with the development of the eruption upon the skin; to be repeated from time to time, at uncertain intervals, and for irregular periods.

The cutaneous affection is manifested by erythematous blotches of a circular figure; these are first apparent on the parts of the body usually exposed to the action of the atmosphere, as the face and hands, and are also met with on the feet, and afterwards creep upwards upon the limbs to the trunk of the body, and extend also to the mucous membrane of the eyes, the nose, and the mouth. The blotches have a diameter of half an inch to two inches; they are dull red or purplish in hue, and fade towards the circumference. After some days the redness of the centre subsides and gives place to a brown stain, and the redness of the circumference creeps on for a short distance, and forms a ring around the brown centre; finally, the redness disappears entirely, and a permanent brown stain (*morphæa nigra*, *melas*) is left in its place. Sometimes on the disappearance of the redness a white stain is left behind (*morphæa alba*, *leuce*), and remains permanently. These stains are probably two of the three examples of spotted skin, or "Vitiligo," referred to by Celsus, namely, "Melas" and "Leuce;" both are permanent, but the white stain

is more indelible than the black, and exhibits a greater degree of disorganization of the skin, being smooth and hard to the touch, and to a certain degree insensible. In the course of the changes here described the skin of the face is apt to acquire a red-brown tint over its whole surface, and the back of the hands and fingers to become brown, and the latter attenuated towards their extremity.

To the touch the centre of the erythematous blotch is hard and dense; and sometimes, instead of subsiding into a stain as already described, the epidermis peels off, and the corium is gradually converted into a tubercle by infiltration of the dermal tissues. The tubercle is at first of a dull red or purplish colour; then it becomes brown from melasmic discoloration; sometimes it has the transparency of brawn, and sometimes is whitish, from the deposition in its tissue of a white albuminous substance, which is peculiar to this disease.

The tubercles of lepra vary in size from that of a pea to a pigeon's egg; they remain stationary for several weeks or months, and then gradually subside and disappear, leaving behind them a depression which is brown or white in colour, and resembles a cicatrix. At other times the tubercles soften and are converted into ulcers which give forth a white granular albuminous substance, and secrete a yellowish-white ichor. Sometimes the secretion encrusts upon the ulcer and gives it the appearance of rupia; at other times the ulcer is deep and excavated, bordered by thick callous and prominent edges, and surrounded by thickened, livid, and often painful skin, the secretion from the ulcers being of a yellowish-white colour and abundant in quantity. After a time the ulcer closes and heals, leaving behind it a hard, white, uneven, and often prominent cicatrix. As one ulcer heals, others are in progress, or fresh ones make their appearance in succession; the discharges seem to afford relief to the constitutional disease, and eventually the case may terminate in spontaneous cure, or it may terminate fatally, from exhaustion of power, or from the destructive effects of ulceration of the mucous membrane, or some organic disorder. In a case lately under our care, and which terminated fatally, both arms were stripped of their integument from the shoulders to the wrists by ulceration, and the patient died of exhaustion.

When the leprous inflammation attacks the mucous membrane,

which it does at a later period of the disease, the conjunctivæ become suffused, swollen, and discoloured; the fauces are congested and covered with red circular spots, as is the whole of the buccal membrane; and there is evidence, in the hoarseness of voice, of a similar condition of the mucous lining of the larynx and bronchial tubes. Not unfrequently a tubercle on the cornea is followed by ulceration of the eyeball, the humours of the eye are lost, and its tissues collapse. In the nose also ulceration destroys the septum and the cartilaginous supports of the organ, and it becomes flattened and distorted. In the larynx similar changes take place, the spots assume a tuberculous character, the tubercles pass into a state of ulceration, and thus is one mode established by which leprosy proves fatal, namely, by ulceration of the glottis and vocal chords, followed by asphyxia. In other cases, death is brought about by prolonged diarrhoea and dysentery, showing the extension of the disease to the alimentary canal; and the researches of Danielssen and Boeck have proved that scarcely any part of the mucous or serous membranes, or any organ of the body, can escape this destructive disease. They have traced it either in the form of accumulation of the peculiar white albuminous substance of lepra or ulceration, in the bronchial tubes, in the pleuræ, the lymphatic glands of the lungs, the mesenteric glands, the sub-peritoneal tissue, and peritoneum; in the liver, spleen, kidneys, bladder, uterus, ovaries, lymphatic glands, eyeball, and the coats of the blood-vessels and nerves. The only organs which seemed to escape were the substance of the lungs, pancreas, salivary glands, muscular tissue, deep cellular tissue, and bones.

LEPRA VEL ELEPHANTIASIS ANÆSTHETICA is especially distinguished by defective innervation, by insensibility, lowered vitality, and atrophy. The constitutional symptoms are similar to those of lepra tuberculosa, but less strongly marked; there is the same languor, lassitude, dulness, somnolency, and depression of spirits, together with an instinctive desire for solitude. The skin is pale and shrunken, the conjunctiva anæmic, the countenance anxious or listless, and the muscles soft and dwindled.

The erythematous congestion of the skin is much slighter than in the tubercular form of the disease, and instead of terminating in brown stains is followed by white discoloration;

and large solitary bullæ, varying in size from one to three inches, are produced upon an erythematous ground, and follow each other in succession. They rise suddenly with little or no pain, sometimes preceded by a slight rheumatic or neuralgic aching, and burst in a few hours, emitting an abundant semi-transparent, viscous, and greenish-yellow or milky discharge. The skin is slightly inflamed and ulcerated, and a crust is formed upon the denuded surface by the desiccation of the morbid secretions; the crust falls from time to time, and is replaced by other crusts until the sore eventually heals, leaving a white and depressed cicatrix, insensible to the touch, and deprived of hair; or if the hair be reproduced, it is thin and white, and never recovers its original character. The glandular apparatus of the skin forming the cicatrix is also destroyed, and there is an absence on the spot of the usual moistening secretions. This process is continued for several years, and without other change; white spots are formed, bullæ are raised and discharge, the skin heals, and a permanent white and hairless cicatrix is left behind.

After awhile the erythematous congestion occupies patches of skin of greater extent than those already described, the redness is slight, and of a purplish or lilac tint, and there is a sensation of prickling in the part denoting the implication of a branch of a nerve. When the congestive action subsides, the prickling pain remains, and often continues for months, while the skin is left pale, thin, and insensible, dry and parchment-like in texture, sordid and discoloured in appearance.

When the face is the seat of this process, the countenance is pale, cadaverous, and listless; the skin is thrown into wrinkles or drawn tightly over the bones, making their prominences more distinct; the lower eyelid is averted and drawn down, the eyelashes are lost, the conjunctiva looks dry and dull, and the tears flow forth upon the cheeks. The nose is sharp and pinched, the teeth and gums are exposed by the drawing down of the lower lip, and the saliva trickles from the mouth.

On the limbs, also, the skin becomes thin and insensible, and the muscles fall into a state of atrophy; this change is remarkable in the hands; the fingers are taper, and the metacarpal bones prominent from atrophy of the interossei muscles, the wasting of the muscles between the thumb and forefinger being regarded as pathognomonic. Moreover, the wasting of the muscles of

the forearm causes distortion of the fingers ; the first phalanges are drawn backwards upon the dorsum of the hand by the extensors, while the second and third phalanges are bent inwards by the flexors. The same changes take place in the feet ; and the distortion, commencing at the extremities, extends by degrees to the wrists and ankles, the elbows and the knees. The joints are rendered unusually prominent, and a morbid action is set up in them, which has given origin to the term *lepra nodosa*, or *joint-evil*, applied to this disease as one of its synonyms.

These features constitute so many grades in the progress of the disease, and take time for their evolution ; at first the erythematous congestion of the skin leaves no trace behind it, but discoloration and atrophy ; in the next place ulceration occurs ; the ulceration heals, and is succeeded by a cicatrix ; thirdly, a permanent ulcer is developed in the hands, or more frequently in the feet, discharges copiously, and becomes a permanent issue to the disease ; if it heal accidentally, it is replaced by another, and lasts so for years ; and fourthly, a portion of a member, such as a finger, a hand, or a foot, swells and becomes painful ; it gets purple in colour ; the skin ulcerates ; the ulcer discharges copiously, as these ulcers always do ; disorganization of the deep tissues takes place, and an entire bone is loosened and expelled through the opening. These spontaneous amputations occur without pain, after the primary congestion, which is always painful, has subsided, and are repeated from time to time, until a whole limb may be severed at the knee, or an arm at the elbow, almost without the knowledge of the patient.

The copious ichorous and viscous discharges which take place from these leprous ulcers evidently act as a relief to the general system, and if they be arrested, constitutional symptoms immediately arise, by which a new outlet is created. The ulcers are progressive in extent and in depth, sinking deeply among the muscles, dislocating and detaching bones, laying bare the cavities of joints, and after all this havoc healing placidly, the cartilage of a joint possibly uniting with the skin, and shining through its attenuated substance. But these latter changes only take place when the sensibility of the limb is almost gone, and when a lighted taper may be held to the skin without exciting painful sensation.

The mucous membrane of the eyes, nose, and mouth, participates in the changes which take place in the skin; it is pale, anæmic, and dry; the eyes lose their faculty of vision, the nose its power of smell, and the palate taste; but ulceration rarely occurs, and even when it does, never reaches the height which is met with in *lepra tuberculosa*. The conjunctiva, from constant exposure to the air, becomes dry and crusted over with scabs; the mucous membrane of the nares is crusted in like manner, the septum is often perforated; the buccal membrane is dry and pale, and the exposed gums recede from the teeth.

Besides the more obvious distinctions between *lepra tuberculosa* and *lepra anæsthetica*, namely, the development of solid tubercles in the one and the absence of tubercles in the other; besides the inappreciable loss of substance in the one case, and the atrophy of the other; besides the lesser degree of derangement of innervation in the one, and the predominance of altered nervous function in the other; besides the chronic state of activity of the former, and the chronic passivity of the latter besides all these, there is no distinction between the two varieties of *lepra* more remarkable than the difference of the pathological element, which is the cause of the solid tubercles and visceral deposits of the one, and of the profuse discharges of the other, the former being a substance white and opaque, and apparently albuminous in its nature, the latter, a transparent viscous fluid, resembling the fresh albumen of an egg, and also albuminous.

In *lepra anæsthetica*, the constitutional febrile symptoms are the prelude to the formation and effusion of this transparent viscous fluid. As soon as effusion is established, either into the tissues, causing œdema of the skin, or poured forth by the excretory orifices effected by ulceration, the constitutional symptoms are immediately relieved; and when, by any accident, the latter effusion is checked, œdema is substituted, the lymphatic glands become inflamed and enlarged, and the febrile symptoms are aggravated. And that the effusion is not limited to the cutaneous tissues is shown by the discovery, after death, of the accumulation of this same substance in the subserous tissue, of the lungs, liver, spleen, kidneys, and especially around the nervous system, in the membranes of the brain and spinal cord, in neurilemmata of the nerves, and in the investing tissue of the

sympathetic ganglia; and not only around these organs, but in their substance also.

It is to the morbid state of the nervous system here detailed that we must ascribe the loss of function of the nervous apparatus, the weakness of intelligence, the visitations of acute pains in the branches of nerves, while the peripheral extremities of those same nerves are senseless; the weakening of the function of digestion, and the coldness of surface, the temperature of the extremities being reduced to 90° , and sometimes as low as 68° , and the temperature in the axilla to 97° .

Further destructive effects of this terrible disease are discovered after death: the liver is enlarged and often in a state of fatty degeneration, the spleen is hypertrophied, the mesenteric glands are swollen, and the kidneys diseased. The latter days of the patient are often accompanied with diarrhoea and cramps, and he sinks from exhaustion, or falls into a state of coma from suspension of renal function.

Boeck and Danielssen have recorded, as the average of duration of lepra, nine years for the tubercular, and eighteen for the anæsthetic form. Two-thirds of a given number of tubercular patients had suffered from the disease from six to eleven years, while in the anæsthetic form it had lasted for more than twenty years, and in one case for thirty-one years. The ages of the tubercular patients at the time of death were under thirty, one having reached the age of forty-five; while the ages of the anæsthetic patients ranged from thirty to sixty. It would therefore appear that while the tubercular variety of the disease is more common than the anæsthetic form, it is also the most speedily fatal.

DIAGNOSIS.—Lepra must be regarded as a grave disease, of which only the extremes are represented by the terms *tuberculosa* and *anæsthetica*; in the tubercular form there is always insensibility, while in the anæsthetic form, the solid element of which the tubercles are composed, is replaced by a fluid element. Among the cases, ten or twelve in number, which have fallen under our observation in this country, we have had the opportunity of seeing the two varieties of the disease; but they have generally presented a mixed character, the tubercular form for the most part being that which chiefly predominated.

Lepra tuberculosa may be mistaken for syphiloderma, but

lepra anæsthetica, with its complete insensibility, is so unlike every other disease, that an error of diagnosis would seem to be impossible. The resemblance of the tubercular form to the effects of syphilis is shown in its dull red erythematous maculæ, its tubercles, the discoloration of, and brown stains upon, the skin, the congestion of the fauces, the deep-seated neuralgic pains, and in the depressed mental state of the patient. The heavy, sombre, frowning countenance and dejected features of lepra, when once seen, are not easily forgotten; and the other symptoms resembling syphilis are distinguishable from the latter by their permanence. The deep brown and almost black stains (melas) of lepra are permanent, and the bronzing and sometimes bleaching of the fingers, together with the production of white stains (leuce), are characteristic of that disease.

If we assemble together the most prominent of the signs of lepra in its early stages, we shall find them to be as follows:—insensibility of the skin; dull-red erythematous maculæ and blotches; suffused red-brown or copper-coloured discoloration of the face; brown or white discoloration of the fingers; brown and black blotches on the trunk and limbs; white blotches attended with evidence of disorganization of the skin, such as thinness and obliteration of the papillæ and follicles; destruction of the hair; and, where the reproduction of hair has been attempted, its weakly bleached character; tubercles, especially on the forehead, along the eyebrows, on the cheeks, and upon the lobes of the ears; œdematous tubercles on the hands and feet; often bullæ, and subsequently ulcers; coldness of surface; deep-seated neuralgic pains, concurrently with insensibility of surface; depression of spirits; listlessness; dejection of countenance; anæmic state of the conjunctiva; atrophy of muscles, commencing in the hands, and remarkable in the metacarpal mass between the thumb and forefinger; attenuation of the fingers, and alopecia.

Alopecia has received so much attention, in association with lepra, as to have gained for the disease one of its synonyms, lepra alopeciata. The alopecia is most remarkable on the eyebrows, and sometimes extends to the entire scalp.

CAUSE.—The cause of lepra is a poison of endemic origin, but the nature of the poison is altogether unknown. The disease is hereditary, but not contagious. One remarkable case, lately

under our observation, has led us to the belief that it may be communicated by inoculation. Europeans long resident in countries where it exists are liable to be attacked by the disease. An English military officer who had gone through the campaign of the mutiny of 1856, in India, came home invalided with lepra. Another example was that of a physician who had resided in India for forty years.

PROGNOSIS.—The question of the curability of lepra is in suspense, and its decision must be influenced by a variety of considerations, such as the origin of the disease, whether hereditary or accidental, and the severity of the attack. The prevailing opinion would seem to be that lepra is incurable, or in favourable cases remediable only in a limited degree.

TREATMENT.—In the presence of a vast evil we are apt to undervalue our natural resources, and look for help from special assistance. That error must not be committed in the case of lepra; all that our usual medical means can accomplish must be effected, and this done, we may turn our attention to specific remedies; to the best of our experience in lepra, a slender reed, but not without hope, if judiciously employed.

The early febrile symptoms of the disease, the weakened digestion, the deranged assimilation, and the cutaneous manifestation of congestion, are so many indications that may be combated by appropriate remedies. This is rational expectant medicine; but in the absence of special and empirical knowledge, we can have no better guide. The remedies suited to these indications are: small and repeated doses of sulphate of magnesia, with quinine and infusion of orange-peel, the chlorate of potash, and the salts of ammonia, bicarbonate, acetate, and hydrochlorate. Next will follow the nitro-muriatic acid with bitters, phosphoric acid with iron, and the citrate of iron and quinine. We have seen the best effects result from the use of these ordinary remedies, and we repose considerable faith in their efficacy.

We have striven to show that disease is debility, that cutaneous disease is specially indicative of debility; hence the necessity of a nutritious, and even generous diet. We endeavour to support the powers of the constitution by tonic remedies, and we must do the same by good, sound, and appropriate food.

All writers are agreed upon the necessity of supporting and stimulating the powers of the skin; the defective sensibility and

nutrition of the skin, the coldness of surface, the tendency to deposition and infiltration into its tissues, the development of ulceration, are symptoms that all point to this necessity. We should recommend for this purpose remedies which we have employed usefully ourselves: lotions of ammonia, the ammonia bath, and the hot-air bath, with subsequent inunction with lard, and a clothing of flannel.

Acting on the presumption of the existence of a blood poison that requires elimination, the compound decoction of sarsaparilla in doses of two quarts a day, and combined with small doses of the iodide or bromide of potassium, has been prescribed in some instances with good effect. But the iodide of potassium in larger doses, and with a specific object, has altogether failed, although it has been found of service in relieving the deep-seated neuralgic pains which accompany this disease.

The bichloride of mercury in small doses, and in conjunction with tincture of bark, has also proved serviceable as an alterative, but has equally failed in larger doses; and the conclusions of most authors are opposed to mercurial remedies.

Chalybeates are indicated by the obvious anæmic character of the disease, and may be used in small doses in any form, namely, ferrum reductum, the tincture of the sesquichloride, the sulphate, the acetate, the phosphate, the iodide, or the citrate alone, or, in combination with quinine, in the citras ferri et quinæ; but large doses are unsuitable; they arrest digestion, and create a feverish reaction that serves to augment the evil they are intended to alleviate.

As a tonic, as a nerve tonic, and especially as a stimulant of nutrition of the skin, arsenic has been used by various authorities; and we believe that we have seen considerable benefit result from its administration. Danielssen and Boeck have employed it in conjunction with the oleum morrhue, and we have given it in our ferro-arsenical mixture in doses of two minims of Fowler's solution three times a day, with meals; or, in acid solution in the liquor arsenici chloridi in doses of four minims. By others it has been given in larger, in fact in too large doses, and has consequently produced disagreeable symptoms, and fallen into unmerited discredit. The triple solution of iodine, mercury, and arsenic of Donovan, has not been satisfactory in its operation or successful in its results.

Danielssen and Boeck have recommended small bleedings, cupping in the region of the spine, counter-irritation over the spinal cord, arsenic, tinctura lyttæ, and cod-liver oil; and they have recorded examples of apparent cure resulting from this treatment. But it must be remembered that lepra is subject to intermission, and time and experience are consequently required to decide the question of cure. Tar has also been administered by these authors, but without any good result; and their opinion of antimony as a remedy for the disease is unfavourable.

Among simples, we have had recommended the decoction of dulcamara and mezereon; aconite and conium have also been tried; but our best resources under this head are two plants of Indian origin, which have the character of being specific remedies, namely, the *asclepias gigantea*, and *hydrocotyle asiatica*.

The *asclepias gigantea*, or *rumex gigantea*, in native language, the *mudar* or *mudarrh*, grows wild in every part of Hindostan. The portion of the plant employed for medicinal use is the bark of the root, which is dried and powdered, the dose of the powder being three to ten grains three times a day. It is also used in decoction, and if it give rise to pain in the stomach a few grains of soda or potash are added to the dose. The powder is also rubbed down to form an ointment for external use, or it may be dredged upon the ulcers, or mixed in a poultice. Another mode of employing it is to combine it with arsenic and black pepper, and divide the mass into pills. These, in fact, are the celebrated "*Asiatic pills*;" each pill contains one-fourteenth of a grain of arsenic, and the dose is one twice in the day.

The *asclepias gigantea* was called by its discoverer, Playfair, the *vegetable mercury*; it is, he says, the most powerful alterative hitherto known, and an excellent deobstruent; in the *jugaru*, or leprosy of the joints, he never found it fail in healing the ulcers, and often succeeded in effecting a perfect cure of the disease. Its action, says Robinson, "is quick and decided, causing a sense of heat in the stomach, which rapidly pervades every part of the system, and produces a titillating feeling on the skin, from the renewed circulation through the minute vessels. It does not appear to be useful, or indeed advisable, where the affection is inflammatory, or the eruption pustular," on account of the great determination which it causes to the skin. "That this medicine is really the principal in the cure I have no doubt, for I scarcely

ever succeeded by any means in curing or even checking the disease before I employed it, and have scarcely ever failed of doing so since." He further observes that bleeding, mercury, and antimony, used singly, are of no use; but that the last two combined with the root of the mudarrh have been found successful when aided by the application of topical stimulants. The formula which he proposes is composed of half a grain of calomel, three grains of antimonial powder, and from six to ten grains of the powder of the mudarrh, to be administered three times a day.

The *hydrocotyle asiatica* belongs to the same family as the common hydrocotyle of our stagnant ponds, and has the reputation of being specific in diseases of the skin, and useful in lepra. It appears to have a peculiar action on the capillaries of the mucous surfaces, and on the skin; it causes at first a sensation of heat in the stomach and at the same time a prickling in the extremities, and then over the whole skin of the body, soon followed by an augmentation of appetite and transpiration, and a general improvement in the health. The properties of the plant seem to be due to a peculiar vegetable principle named *vellarine*, from *vellarai*, a native name of the hydrocotyle. Vellarine is a thick, pale yellow oil, having a bitter and penetrating taste which abides for some time on the tongue, and is most abundant in the roots, wherein it exists in the proportion of somewhat more than one per cent. Besides the vellarine, there is a yellow oil, brown resin, green resin, saccharine extract, non-saccharine extract, and bitter extract; the latter, in the proportion of ten and a half per cent, is found only in the root. The fresh plant is slightly bitter and aromatic in taste.

The pharmaceutical preparations of the hydrocotyle are, a *powder* of the entire plant, of which the dose ranges from one to six grains daily; a *syrup*, prepared from the juice, useful for children, the dose ranging from two drachms to two ounces daily; a *tincture*, the daily dose ranging from ten to forty drops; an *infusion*: an *ointment* of the green plant; and *baths*, containing four pounds of the plant, either green or dried. Similar preparations are made from the root, and are much more active than those of the entire plant, the root containing, as already mentioned, the largest proportion of vellarine. Vellarine cannot, however, be employed separately, from its great hygrometric qualities and active tendency to decompose. Vellarine has also

the property of volatilization at 212° , and the virtues of the plant are consequently destroyed by exposure to heat. For this reason, decoction and extract are inadmissible forms.

Dr. Marshall, of Bombay, found nitric acid a valuable and successful remedy, exhibited in the dose of one drachm daily, diluted with a pint or a pint and a half of water. Of two hundred patients treated on this plan, more than one-third were cured, and the greater number of the remainder much benefited.

The *local* treatment of the tubercles of lepra consists in the application of stimulants, with the double view of relieving the distended tissues, and causing absorption of the mass. The applications the best suited for this purpose are, a solution of potassa fusa, one part to two of water, the acid nitrate of mercury, and stimulating baths, such as the ammonia bath, a strongly alkaline bath, or baths of sulphuret of potash. Danielssen and Boeck recommend the touching of ulcerations of the glottis with the potassa fusa diluted with honey.

The ulcers both of the tubercular and anæsthetic form may be dressed with the resin, or tar, or benzoated ointment of oxide of zinc; or, if they discharge profusely, may be dusted with a powder consisting of equal parts of calamine and cinchona. If the mudarrh powder be procurable, to it may be given the preference.

MORPHŒA.

In the *course* of lepra, at its *close*, and often where no other symptom of the disease exists, the skin is visited by the appearance of black and white stains. These stains are termed morphœa nigra and morphœa alba, the morphœa nigra being the vitiligo melas of Celsus, the morphœa alba his vitiligo leuce. The skin is subject to black and white discolorations, which depend upon an excess or deficiency of pigment in the skin; but these discolorations differ from morphœa, in the absence of disorganization, and also in the absence of any alteration of sensibility of the skin. Morphœa nigra, or melas, evinces insensibility, and a certain degree of alteration of texture of the skin. Morphœa alba or leuce exhibits insensibility and disorganization of structure to a greater and more obvious extent. It is not our office at present to treat of the forms of morphœa which accom-

pany lepra in the relation of symptoms of that disease, but to consider them as independent affections, or rather as affections of the nature of lepra occurring in persons in whom no other symptom of that disease is manifested.

MORPHŒA NIGRA, or VITILIGÓ MELAS, we have never seen dissociated from lepra or from morphœa alba; it exhibits the mildest form of permanent change in the skin manifested by lepra. It occurs in spots and patches of rounded form, and varying in dimensions from one to several inches in diameter, and dispersed more or less numerous over the body. Commonly the spots are preceded by an erythematous congestion of the skin, and the discoloration occupies the seat of the erythema at its decline; at other times a general coarseness and greasiness of the skin precedes the discoloration, and indicates a congestion of the glandular structure of the corium. The discoloration varies in tint, from a yellowish or reddish brown to a tint almost approaching to black; and the pigment would seem not to be limited to the rete mucosum and the epithelial lining of the follicles, but also to pervade the superficial stratum of the corium.

In the beginning the surface of the stain is smooth, but after a time there is dryness, roughness, and desquamation of the cuticle; the corium becomes thinner than natural, and less sensitive; and in certain situations, as on the figures, acquires the lustre and tint of oxydised silver. The pathognomonic characters of morphœa nigra, therefore, are its association with lepra or morphœa alba, a degree of insensibility and thinning of the skin, together with a tendency to exfoliation and dryness of the cuticle.

MORPHŒA ALBA, or VITILIGO LEUCE, is more characteristic than morphœa nigra, and exists not unfrequently as an independent disease. It occupies a small portion of the body, appearing in patches, is remarkable for its whiteness and insensibility, and for presenting the two special characters of lepra; namely, infiltration of the white opaque substance of lepra tuberculosa, and for the atrophy of lepra anæsthetica. Sometimes these two characters occur independently; at other times they are associated, or the former may give place to the latter. Hence the necessity of distinguishing two varieties of morphœa alba; namely, the infiltrated or lardaceous, or tuberculous form, morphœa alba tuberosa, and the atrophic form, morphœa alba atrophica.

MORPHŒA ALBA TUBEROSA represents the tubercular form of lepra, and from the resemblance of the affected skin to a tissue injected or infiltrated with white wax, or to the aspect of a bladder of lard, has received the additional name of *lardacea*. It occurs in spots or patches, which vary in extent from half an inch to several inches in diameter; sometimes a number of small spots are developed in a cluster, but more frequently they are single and isolated. The surface of the spot is smooth, uniform with the rest of the skin, hard, apparently deprived of vessels, insensible, and hairless, and gives the idea of a portion of dead skin. The lines of motion and natural texture of the papillary structure are obliterated; a few straggling venules meander over its surface, and if any hairs remain, they are soft, and bleached, and downy. It is dry also, from the destruction of the glandular structure; and the cuticle, at first unchanged, becomes yellow and hard, and exfoliates by repeated desquamation.

The white patch of morphœa is often in the state now described when first observed; nevertheless, it begins as a lilac blush, and is sometimes accompanied with a sensation of tingling. After a time the spot becomes bleached in the centre, and encroaches more and more upon the lilac border, until at length it occupies the entire surface, and the lilac border disappears. The patch may remain in this state permanently, with no other change than dryness and a little discoloration of the cuticle, or the corium may become harder and whiter from the deposition of the semi-opaque white matter already described. Or, at a later period, the white deposit may be removed from the corium by absorption, the injured tissues may collapse and shrink, and the case may be converted into one of morphœa alba atrophica.

MORPHŒA ALBA ATROPHICA corresponds in the general features of whiteness and insensibility, with morphœa tuberosa, its special characters being wasting or atrophy of the skin. It begins, as does the tuberos variety, with a lilac erythematous blush; it invades by degrees the spot occupied by the blush, it becomes dry on the surface from the destruction of the glandular apparatus of the skin; the cuticle desquamates, becomes hard and horny, and the corium shrinks, often drawing towards it the surrounding integument, and producing distortion of countenance or figure, or contraction of a limb.

Morphœa atrophica sometimes evinces its force from the beginning, absorption and atrophy taking possession of the tissues already weakened by defective innervation; sometimes the tissues are disorganized not only by defective innervation, but also by the infiltration and deposit of the peculiar white substance of the tuberculous form of the disease; and the absorption of this matter brings with it the collapse and atrophy of the skin.

When the pathological phenomena already described occur upon the scalp they are followed by destruction of the hair as well as by atrophy of the skin, and, as a consequence, a state of permanent baldness; this is *morphœa alopeciata*. Alopecia is a common symptom of lepra, and the *modus operandi* of the disease is sufficiently obvious.

DIAGNOSIS.—Morphœa nigra, or melas, and morphœa alba, or leuce, are distinguished from melanoderma, or melasma, and leucoderma, or leucosma, by the presence of a morbid change in the skin, which results in its disorganization or atrophy. In melasma and leucosma the skin retains its natural structure, and commonly its softness and pliancy. In morphœa nigra, and especially in morphœa alba, the skin has evidently undergone a morbid alteration of structure; and in the latter, if not infiltrated with an opaque, white matter, possibly *amyloid* in its nature, is in a state of atrophy. Moreover, the alliance of morphœa with lepra is shown in its association with that disease in the character of a symptom.

CAUSE.—The cause of morphœa we believe to be identical with that of lepra, a blood poison, but the question is shrouded in obscurity.

PROGNOSIS.—Morphœa is a chronic and obstinate complaint; it may be arrested in its progress by judicious treatment, but the atrophy of tissue admits of no restoration.

TREATMENT.—As morphœa is always associated with a general as well as a local debility, the general health must be regulated, and the vital power augmented by every means in our power; by nutritious and generous diet, by the observance of a proper hygienic regimen, and by tonic medicines, general and special; the special remedies being cod-liver oil, steel, arsenic, and iodine. Locally, the part should be stimulated by ablutions with the juniper-tar soap, by frictions with ioduretted glycerine,

by painting with the compound tincture of iodine. In some instances we have used the potash solution (one part of tassa fusa to seven of water), and the acetum cantharidis, with advantage.

CHAPTER XVIII.

AFFECTIONS OF THE PIGMENT SYSTEM.

THE PIGMENT SYSTEM of the skin has its seat in the rete mucosum. The disorders of this system, or the disorders of chromatogenesis, may therefore be regarded as diseases of the rete mucosum; and the rete mucosum being the formative layer of the epidermis, they may also be considered as diseases of the epidermis. The diseases treated of in previous chapters have been diseases of the derma, but this and the two following chapters will be devoted to the consideration of disorders affecting the epidermis, its mucous and its horny layer, the action of the disease taking place in the rete mucosum, and the horny epidermis suffering derangement of structure to a greater or less extent as a consequence.

The chromatogenous, or dyschromatous diseases manifest their existence by a variation of colour of the skin; the more common change is that of a deepening in hue of the natural dark pigment of the rete mucosum, constituting melanopathia, melanoderma, or melasma; in the second place, the predominating morbid tint may be yellow, as in freckles, and the disorder one of xanthopathia; occasionally a blue pigment has been noted as being present in the skin, and the deranged function has been termed cyanopathia; and, lastly, there may be an achroma, or total absence of colour, and the skin may be perfectly white; this is the state which is termed leucopathia, leucoderma, or leucosma.

MELANOPATHIA.

MELANOPATHIA or MELASMA CUTIS, commonly presents every shade of dark discoloration from mere duskiness of hue, *fuscedo cutis*, to the deepest tints of swarthinness or blackness, *nigredo vel nigrities cutis*. The lighter tints of black, mingled with the natural red and yellow of the skin, give rise to brown of various shades, and to the colour of medium depth of tint which has recently been distinguished as "bronzing" of the skin. Mela-

Nopathia may also be general in its distribution, *melasma universum*, or it may be partial, *melasma figuratum*.

Looking to the origin of melanoderma, we discover that the **dyschroma** may be physiological or it may be pathological, and in the latter case may be due to external causes, or causes affecting the cutaneous tissue alone, or to internal causes which operate upon the skin through the medium of the nervous system.

We are familiar with a physiological melasma in the swarthy coloration of the skin of the external organs of generation, and especially in the deep tint of brown or black that occupies the areola of the mamma in pregnancy. We have recorded an example of this discoloration, in which the blackness was not limited to the areola, but spread out upon the adjacent skin, until it occupied the whole front of the trunk of the body from the clavicles to the middle of the thighs. Another example of physiological melasma is seen in the darkening of the skin of the eyelids which accompanies menstruation, and especially disorders of menstruation.

The local causes the most energetic in the production of pathological melasma are, heat, cold, and light, and especially the heat of the sun; while the latter and more familiar example has suggested the term *ephēlis*, *ἡλιος*, upon; *ἡλιος*, the sun, by which one form of melasma figuratum has been known from the days of Hippocrates down to the present time. The heat of the fire may produce a similar effect; so also may the reaction of heat after exposure to extreme cold, or the local irritation created by a blister applied to the skin.

The constitutional pathological causes that result in the production of melasma, both *universum et figuratum*, are disorders of the abdominal or pelvic organs, exciting irritation in the plexuses and ganglia of the organic nerves, and causing a pigmentary metamorphosis of the blood corpuscles of the venous system of the abdomen, and a reflex irritation in the skin.

Plenck distinguishes seven varieties of Melasma, under the name of *Ephēlis*; three belonging to the local group, namely, *solaris*, *ignealis*, and *vesicatorio*; and four constitutional, namely, *gravidarum*, *hepatica*, *dysmenorrhœalis*, and *hæmorrhoidalis*. It will, however, be sufficient for every practical purpose, and at the same time more simple, to consider the varieties of melano-

galia under two heads, namely, general melasma or melanosis universalis, and partial melasma or melasma figuratum.

Melanosis *universalis* is a general darkening of colour of the skin, spreading gradually over the whole or the greater part of the body, and with more or less uniformity of tint. We have already have recorded several such examples, and others are to be met with in the writings of many authors.

Andersson was the first to point out the association of melanosis with ascemia; and this association is the most important feature of the disease; simple alteration of colour might be regarded as an inconvenience rather than a disease; but when the change of colour is found to depend upon the destruction of the red particles of the blood, and the metamorphosis of these constituent substance into pigmentary matter, to be subsequently deposited in the red massum by an eliminating effort, we are induced to look more seriously into the nature of the disease. Frerichs has seen the alteration which we are now describing in course of progress; he has seen the blood particles of the splenic vein in process of being converted into pigmentary substance; and he has traced the pigmentary substance subsequently to the liver and to the brain. We have ourselves noted an analogous, as a symptom of this morbid change, a peculiar discoloration of the eyeball, which we termed melanemic or melanitic eye; this remarkable change in the eyeball being usually accompanied with a greater or less degree of melasma palpebrarum.

Melanopathia cutis may therefore be said to be the consequence of melanemia, and melanemia to be the result of a morbid change in the blood, occurring in the splenic vein, and probably to a greater or a less extent in all the veins of the portal system, and in a less degree in those of the general system. Now healthy sanguification and the healthy maintenance of the blood, are due to the nervous system, and in the present instance to that most important portion of the nervous system that has its centre in the solar plexus, and is surrounded by an intricate and extensive network of satellite plexuses and ganglia, the great centre of the organic system of nerves. Thus, in the example cited by Frerichs, of a destructive metamorphosis of the blood corpuscles of the veins of the spleen, we recognise a disordered innervation of the organ, of its vessels, and of their contents,

and we trace this defective innervation to the source of the nervous power of the abdominal and pelvic viscera, namely, to the chain of nervous ganglia that has its head in the semilunar ganglia. If we discover disease, such as softening or pressure, or disorganization in the course of this chain; or in the *fons et origo*, the semilunar ganglion, we are warranted in the conclusion that this disease is the cause of the disordered innervation, that the destructive metamorphosis of the blood-vessels has followed in the suite of the nerve disease, that melanæmia succeeds, and, as a remoter consequence, an increased deposition of pigment in the cells of the rete mucosum of the skin.

But it is in nowise necessary that disorganization of nerve substance or of a nerve centre, should be present to explain the phenomena before us; disordered innervation may be a consequence of reflex action, and morbid actions are known to operate with as much certainty through the agency of reflex transmission as they do by direct irritation. Thus, disease of any kind affecting an unimportant organ such as the capsula suprarenalis, will necessarily implicate a considerable plexus of organic nerves situated in its immediate neighbourhood; these nerves have their centre in the semilunar ganglion; the semilunar ganglion flashes the morbid irritation through the whole of the nerves which proceed from its mass; the splenic plexus is of the number, and the stimulus is at once given, which results in disordered splenic innervation, pigmentary hæmic metamorphosis, melanæmia, and melanopathia or melanoderma.

We select the above illustration because it is the one to which great interest has been given by the researches of Addison; but it would not be doing justice to the subject to confine it within so narrow a boundary. Disorder and disease of any one or of several together, of the abdominal or of the pelvic organs, may operate as a source of incident irritation, to be afterwards manifested as reflected irritation upon the spleen, the assimilative organs, the secreting organs, or the reproductive organs. All that series of reflex irritations with which we are so familiar in hysteria, may be set in operation as the agents of hæmic dyscrasia, of hæmic pigmentary metamorphosis, and of melanopathia. We have an example at hand in simple menstruation, and more strikingly in morbid menstruation; the nervous plexuses of the uterus communicate an incident irritation to the semilunar

ganglia, the semilunar ganglia reflect that irritation on the organs of digestion; the results are, nausea, loss of appetite, weariness, depression of spirits, sympathetic pains, and melanic discoloration of the eyelids, the latter doubtless attributable to irritation of the splenic plexus of nerves. It will be seen, therefore, that a disease of any organ of the abdomen or pelvis has a power of exciting reflex irritation in the solar plexus equal to that of the capsulæ suprarenales, and that the reason why melanopathia and melanæmia have so frequently been found associated with disease of the latter organs is, in the first place, their position close to the semilunar ganglia, and surrounded by a network of organic nerves; and, secondly, their proneness to degeneration and decay from having no longer a function to perform in the economy.

The constitutional symptoms associated with melanopathia, both general and partial, may be grouped under three principal heads, nutritive, gastric, and nervous. The symptoms evincing disordered nutrition are thinness and spareness of habit, softness of muscle, pale and discoloured skin. The symptoms denoting weakness of digestive organs are: loss of appetite, dyspepsia, weight at the epigastrium, flatulence, sometimes nausea and sickness, sometimes constipation; but, in general, there is little change in the action of the bowels. The symptoms showing feebleness of the nervous powers are: debility, languor, lassitude, listlessness, restlessness, depression of spirits, melancholy, nervous irritability, giddiness, dimness of vision, sometimes sleeplessness, headache, feeble action and palpitations of the heart, loss of energy and courage, and loss of memory; in one case there existed nervous monomania, in another there was "misery and despondency."

MELASMA FIGURATUM is a partial form of melanopathia, generally circumscribed, but not unfrequently associated with a diffused duskiness of the skin, *fuscedo cutis*, of considerable extent. It is to this form of melanopathia that the term *ephelis* has been given; but as the word *ephelis* applies only to a cause, although to a cause that is far from uncommon; nevertheless, to one only of many causes, it is more consistent with a better knowledge of the nature of the disease, to adopt the term *melasma* or *melanoderma* in preference to *ephelis*.

Melasma figuratum is more frequently seen upon the face than elsewhere, but may be developed upon any part of the body

Its common seat is the forehead; next in frequency it is met with on the back of the hands, on the trunk of the body, and on the limbs. On the face and back of the hands it occupies a position which is most exposed to alternations of temperature, to the action of the sun and of fire, common causes of the disease. The face also is the seat of manifestation of many of the sympathies of the body, and the reflex phenomena of nervous irritation excited in the digestive and reproductive system are manifested, as in a mirror, on the forehead and upon the face. *Melasma palpebrarum*, or *blephral melasma*, commonly presents itself in a diffused form, more highly concentrated near the edges of the lids than elsewhere, and commonly associated with *anæmia of conjunctiva*, and a dark liquid transparency of the globe of the eye, which we have designated by the name of *melasma oculi*. In countries where the charcoal brazier is much in use for warming the feet, a mottled form of *melasma*, *ephelis ignealis*, is met with on the inner side of the legs and thighs. A similar mottling is sometimes produced by varicose veins, and the lower extremities are especially liable to a yellow, black, or brown discoloration occurring in patches of variable extent, "*maculæ livido-atræe tibiæ, potissimum senum, absque evidenti causa.*" Neither must we omit the melasmic blotches or *maculæ* which sometimes follow blisters, ulcers of the legs, and, in particular, syphilitic eruptions and ulcerations.

Looking to the constitutional origin of *melasma*, we see a reason why it should be more common in the female than in the male sex, and also why it should prove more obstinate in the former than in the latter. In twenty cases, seventeen were females, and only three males; the ages of these twenty ranged between twenty and forty-five, and the duration of the disease was: in ten, from two to five years, and in seven, from five to ten years.

Melasma frontis often assumes a peculiarity of figure which is not met with elsewhere; it is most concentrated along the line of the hair, and fades towards the centre, or it is absent in the centre, and assumes the shape of an arch; sometimes there is a central patch as well as the arched segment at either side; and occasionally the pigment takes the direction of the supraorbital nerves. A lady whom we know has a melasmic patch shaped like a horse-shoe on the middle of the forehead; the ends of the arch correspond with the inner extremity of the eyebrows, and

two smaller curves proceed from these ends parallel with the eyebrows to about their middle.

Melasma is sometimes confined to a single region of the skin, as to the forehead, but is also very commonly dispersed over several regions at the same time; for example, in the twenty cases already mentioned, melasma frontis was present in thirteen of the number, but was alone in three only, the remaining ten cases presenting the following combinations: melasma diffusum, five; faciei, three; faciei et colli, one; and labii superioris, one. In one case the melasma occupied the cheek and the conjunctiva, and in another the dorsum of the hand and the popliteal region; while all presented examples of melasma oculi more or less perfectly defined. Moreover, two of the cases were associated with chloasma, a theme for future consideration.

DIAGNOSIS.—The prominent feature of melanopathia, namely, colour, is so obvious, and the existence of anæmia so striking, that errors of diagnosis in well-marked examples of the disease are not likely to occur; in doubtful cases it may be remembered that the cuticle is commonly unchanged in melasma, but is more or less broken up and foliaceous in chloasma.

CAUSE.—Melanopathia obeys a double cause, namely, a *local cause*, such as the heat of the sun or fire, and the reaction of heat after exposure to cold; or local irritation, such as that occasioned by varicose veins; and a *constitutional cause*, under the influence of which the red corpuscles of the blood are changed into pigment particles, creating melanæmia, and afterwards deposited by way of elimination in the cells of the rete mucosum.

Looking to the predisposing cause, nervous debility was present in thirteen of the twenty cases already referred to, nutritive debility in four, and assimilative debility in three; while the remote predisposing causes were as follows: pregnancy and uterine derangement, nine; nervous shock, six; and the following, one each: rapid growth, climate, rubeola, syphilis, and the heat of the sun after parturition. Melasma frontis succeeded pregnancy on two occasions in the same patient; and an additional predisposing cause seemed to contribute additional potency to the influence of the puerperal state in others; for example, the conjunction of rubeola and parturition, parturition and exposure to the sun, &c.

PROGNOSIS.—Grave or unimportant according to the nature of the cause: if the irritation of the organic nerves be due to visceral disease, and proceed to an aggravated form of melanæmia and leucæmia, the case will prove fatal; if the disease be slight, or simply functional, there is hope of cure. And cure may especially be predicted where the nervous irritation originates in deranged uterine function or in hysteria.

TREATMENT.—The treatment of melanopathia must be governed by the nature of the cause of the disease: in a large proportion of cases it originates in nervous debility; in a small number, in nutritive and assimilative debility. Our treatment must have for its object to renovate strength and nervous power. Tonics of all kinds are indicated, especially quinine and iron, and phosphoric acid and iron. In nutritive debility we may conjoin cod-liver oil with these tonics; and in assimilative debility regulate digestion and secretion before aiming at bestowing power. In the generality of these cases, particularly where all ordinary indications have been accomplished by the usual means, we have found the ferro-arsenical mixture of great value, of a strength sufficient to give two minims of Fowler's solution for the dose three times a day. With this treatment it is also necessary to combine moral medicine and a generous diet.

The local treatment requires moderate stimulation, by means of friction and abluion with the juniper-tar soap and the use of cold water. The bichloride of mercury lotion, one or two grains to the ounce, is frequently of great service; so also are frictions with the unguentum picis liquidæ and unguentum sulphuris, of each equal parts. We have in some instances employed with advantage a lotion of carbolic acid, a lotion of juniper tar with alcohol and soft soap, the unguentum creasoti, and the liquor carbonis detergens; and in obstinate cases have had recourse to the compound tincture of iodine pencilled on the surface, and a solution of potassa fusa, one part to eight of water.

XANTHOPATHIA.

XANTHOPATHIA, or yellow discoloration of the skin, consists in the deposit in the cells of the rete mucosum, of a yellow colouring principle, and is the foundation of diffused pigmentary

yellowness of the cutaneous surface, *flavedo cutis*, the yell- w
 tints of cachexia cutis, the maculæ lutæ of newly-born infan- ts,
 the circumscribed spots of lentigo, and, in combination w- th
 a small proportion of black, the yellow and reddish-bro- wn
 of chloasma. Xanthopathia represents the yellow complex- ion
 of certain of the races of mankind, as does melanopathia t- hat
 of the negro; and the xanthic element, like the melanic eleme- nt,
 is doubtless derived from the colouring principle of the blo- od.
 We see this colouring principle developed in the varied tints - of
 a bruise; and we have evidence of its presence in the econo- my
 in the coloration of the bile and of the urine. In a free sta- te,
 namely, as a secretion of the sebiparous glands, we have anot- her
 illustration of the xanthic colouring principle in stearrh- oea
flavescens; and in association also with the sebiparous appa- ra-
 tus, a sub-cuticular discoloration of the eyelids, which we h- ave
 designated a yellow hypertrophy of the epithelium.

The diseases which call for special consideration under the
 head of xanthopathia are: Lentigo and Chloasma.

LENTIGO.

LENTIGO is the small lentil-shaped and lentil-coloured spot
 commonly met with on the face of children and young persons,
 in considerable numbers, and popularly termed *freckles* (*lenti-
 gines*). The spots are small, round, and yellow, of various
 size, rarely larger than the diameter of a split pea, and often
 considerably smaller. They are seated in the rete mucosum,
 and most abundantly distributed on parts of the body exposed
 to the influence of the light and heat of the sun; as the face,
 neck, and hands; and on the face they are most numerous
 around the eyelids, upon the forehead, and upon the cheeks.

The colour of the lenticular spots offers some variety, in accord-
 ance with the complexion of the individual: in red-haired per-
 sons they are saffron-coloured, and in children of different com-
 plexions may be traced a series of tints, running through every
 shade of yellow, to light brown, and even green. Plenck seems
 to have been most familiar with the browner kinds; for he says
 "*lentigines sunt maculæ fuscae, quæ, colore, figurâ et magni-
 tudine, lentes referunt.*"

Lentigo is sometimes a congenital affection, appearing soon after birth, and continuing through life; more commonly, however, it prevails during the ten years from ten to twenty, and is more frequent in persons of light complexion and light hair, than in those possessing a darker skin. There is, however, a form of lentigo, which occurs upon the covered parts of the skin, *lentigines frigidae*, or cold freckles, which are more common in adult life than in the young: these latter result from some derangement of the colouring principle of the skin, referrible to internal causes, and, except for their size, belong to the consideration of melasma rather than of xanthopathia.

The exciting cause of lentigo is the operation of light and heat upon the skin, and in particular the sun's rays; but there doubtless exists a predisposing cause, in a weakness of structure of the skin, and a sensitiveness to irritant impressions. Cold freckles obey a constitutional cause, are met with in men as well as in women, and are favoured in their development by a weak state of the cutaneous tissues.

TREATMENT.—The intention of treatment in lentigo should be to promote a healthy tone and healthy nutrition of the skin; to this end the parts should be washed once or twice a day with some mildly stimulating soap, such as that of juniper tar, and cold water, and a moderately stimulant lotion subsequently applied, such as that of the bichloride of mercury in emulsion of bitter almonds (gr. j—ij ad $\frac{3}{4}$ j); a similar solution in spirit, with elder or rose water; or a lotion of borax and rose-water.

CHLOASMA.

CHLOASMA is a discoloration of the skin of a light yellowish or greenish-brown tint, having its seat in the rete mucosum, occurring in small patches or blotches of considerable extent, distinctly circumscribed, and developed symmetrically on the trunk of the body, the neck, and occasionally on the limbs.

Chloasma is popularly named *liver-spot*, probably from its colour; but the colour is subject to certain variations, ranging from a reddish and yellowish tint to a light or even a dark brown or greenish hue; the latter tint having suggested very probably the term chloasma. These differences of tint correspond with the

complexion of the patient, the colour being light in fair, and deep in dark persons. The patches of which it is composed are sometimes small and separate, like a cluster of islets or fleecy clouds, and at other times large and extensive, and bounded by a map-like line. The common situation of the discoloration is the trunk of the body, beginning at the axillæ, and extending upwards upon the shoulders and neck and downwards upon the flanks, or beginning at the groins and extending upwards upon the abdomen and downwards for a short distance upon the thighs. The patches are developed in a similar manner upon the back, and are also met with in the flexures of the elbows and of the hams, and sometimes upon the inner side of the arms and legs.

Next to colour and figure the most striking character of chloasma is pruritus, and that also is very variable. We have met with persons who have complained of intense suffering from itching, and we have found it convenient to designate such cases by the name of *chloasma pruriginosum*, while in the greater number the pruritus was trifling, and in some there was no itching at all.

Another of the symptoms of chloasma is desquamation, and this forms no exception in variety to that which prevails in the other symptoms. Occasionally there has been no trace of desquamation or exfoliation, the predominating symptom being colour only; and such cases we have distinguished as *chloasma pigmentosum*; while in others the exfoliation and desquamation have been the first appearances to catch the eye, and we have felt the necessity of employing the term *chloasma furfuraceum*.

In brief, we have sometimes seen chloasma presenting the characters of an erythematous redness, and entitling itself to the denomination of *chloasma erythematosum*, while at other times its characters were best distinguished by the terms *pigmentosum*, *pruriginosum*, and *furfuraceum*. It is evident that chloasma is not a mere alteration of colour, like melasma and lentigo; but that it is associated very commonly with a degree of hyperæmia, and when this hyperæmia exists, there is more or less alteration of structure of the rete mucosum, and a furfuraceous breaking up and desquamation of the epidermis. It is this latter character that has occasioned the confusion between pityriasis and chloasma, and has gained for the latter the synonym of pityria-

sis versicolor, while a chloasma with a deeper tint of pigmentation has been termed pityriasis nigra.

According to our view of the pathology of chloasma, the rete mucosum and epidermis present a degeneration of structure, in which the primary granules of the cells take on a morbid growth and possibly proliferation. This state of the cell-tissue we have termed *granular degeneration*; and when a portion of the morbid cell-tissue is placed in the field of the microscope, the granules may be seen in vast numbers. By others these granules are regarded as mucedinous plants, and have received the names of microsporon furfur and epidermophyton. The colour of chloasma is supposed to be due not to animal pigment, but to the coloration of the supposititious plant, and the desquamation to result from the breaking up of the horny tissue of the epidermis by the growth of the plant, and by the absorption of its moisture and that of the rete mucosum, for the purposes of nutrition of the parasite; in the language of this theory, the granules are sporules, and the sporules constitute the plant.

Chloasma prevails somewhat more frequently among males than among females; the ages most favourable for its development ranging from fifteen to thirty, and its duration from one to ten years. It is therefore a chronic complaint, and is apt to recur from time to time for a considerable period. We have found it to be sometimes associated with melasma figuratum and melasma oculi, and sometimes with eczema; while in one instance it accompanied melasma oculi and alopecia areata.

DIAGNOSIS.—The photognomonic characters of chloasma are its yellowish, brownish, and greenish patches, some small and others extensive; its principal seat, upon the trunk of the body and flexures of the joints; its symmetrical position, either excentric or concentric; pruritus, sometimes present and sometimes absent; and cuticular exfoliation, also absent occasionally. Its colour distinguishes it from ordinary pityriasis, as it does also from melasma.

CAUSE.—The cause of chloasma is a debility of tissue, originating in nervous sympathy with the visceral organic system, and chiefly with the assimilative organs. In its pathological nature it is a hyperæmia accompanied with a morbid alteration of the epidermic cells, and an accumulation of pigment in the rete mucosum. But according to the supporters of the vegetable theory,

it is a parasitic fungus, coming from without, growing in the rete mucosum at the expense of the juices of the cell-tissue, breaking up the horny epidermis into foliaceous and furfuraceous scales, and itself constituting the chief bulk of the desquamating substance, the colour of the chloasma being in fact the colour of the fungus. According to the same theory, chloasma is contagious, a belief which does not accord with experience.

The predisposing cause in thirty cases, was assimilative debility in twenty-five, nutritive debility in three, nervous debility in one only; and the remote predisposing causes were as follows: dyspepsia, alternation of seasons, variations of climate, pregnancy and menstrual disorder, general nervous weakness, eczematous diathesis, affliction, hæmorrhoids, rheumatism, leucorrhœa, sedentary pursuits, and alternation of cold and heat.

PROGNOSIS.—Chloasma is harmless, although disagreeable to the patient from its appearance, and sometimes annoying from insupportable itching. It betrays no serious constitutional disturbance, is obstinate and recurrent, but eventually gets well.

TREATMENT.—The treatment of chloasma must be directed to the digestive and assimilative organs and secretions; and the best remedies for this purpose are, sulphate of magnesia with quinine or a bitter infusion; or, nitromuriatic acid with bitters. In obstinate cases it may be desirable to have recourse to the ferro-arsenical mixture.

The local treatment is one of stimulus of the skin, ablu-tion with the juniper-tar soap, the cold tub in the morning, and spongings with the bichloride of mercury lotion, two grains to the ounce. In very obstinate cases the solution of the pent-sulphide of lime will be found useful, or frictions with an ointment composed of equal parts of unguentum picis liquidæ, and unguentum sulphuris: these latter remedies should be used at night and washed off with soap in the morning, and they are at the same time the most effectual agents for the relief of pruritus. The unguentum creasoti is a useful application for the same purpose.

CYANOPATHIA.

CYANOPATHIA, or blue discoloration of the skin, is identical in its mode of manifestation with melanopathia and xanthopathia;

but there is this difference between them, namely, that black and yellow are natural animal pigments, and are developed normally in the skin of the human family, their extremes being represented by the Negro and the Mongol; but blue pigment is an abnormal product resulting from morbid chemical combinations, and is consequently less frequent. Billard d'Angers has reported a case of cyanopathia of the forehead, face, front of the neck, chest, and abdomen, in a young girl; and he makes the curious observation that she blushed blue instead of red. Blue pigment has also been seen in the sebaceous secretion in steorrhœa cœruleum, in the perspiratory secretion, and also in the urine.

LEUCOPATHIA.

LEUCOPATHIA, LEUCODERMA, VEL LEUCOSMA CUTIS is an absence of pigment in the skin, an achromatous condition of the rete mucosum, and presents itself sometimes as a general affection, *leucosma universum*, and sometimes as a partial affection, *leucosma figuratum*.

LEUCOSMA UNIVERSUM, or general achroma of the skin, is best illustrated in the albino, in whom there is a total absence of pigment, not only in the skin, but also in the hair and in the choroid coat of the eyeball. The absence of colour is in this case physiological, and frequently hereditary; but as far as the individual is concerned, it is a state of disease, for it interferes with his comfort in a serious degree; he is almost blind by day, and only sees as well as other men in the gloom of the evening and at night.

LEUCOSMA FIGURATUM is the common form of pathological achroma, and occurs in patches, usually of a circular figure, and developed both upon the trunk of the body and upon the limbs. Leucosma is not uncommon in the black races, and in them is very possibly a simple arrest of pigment-formation, from disordered innervation and nutrition. But amongst those who possess normally a less degree of coloration the disorder of chromatogenesis is more general; for not only is there an absence of pigment on the parts affected with leucosma, but an excess of pigment on surrounding parts or diffused over the rest of the body. We have constantly before us examples of pure melasma,

but never cases of pure leucosma, for leucosma is always associated, in a greater or less degree, with melasma.

If we may judge from so small a number as twelve cases, leucosma would seem to be more common in the male than in the female, and in the proportion of seven to five. Ten of these cases commenced between the ages of fifteen and forty, four out of the number occurring between fifteen and twenty, and four between twenty and thirty; one at the age of nine, and one at fifty-four. The duration of the disease at the time of treatment ranged between one year and five in six cases; between five years and ten, in three; and between ten years and twenty, in two; one having lasted twenty-seven years.

Ten of the twelve cases now referred to were examples of leucosma figuratum, associated with melasma diffusum; in one instance the leucosmic spots were small and elongated in form, resembling cicatrices, *leucosma maculosum*; and in another the bleaching was confined to the edge of the upper eyelid of one side, and implicated six or eight of the cilia, which were also perfectly white.

When leucosma attacks the hairy parts of the body, it is not uncommon for the hairs growing upon the spot to be perfectly white. In one of the above cases a circular leucosmic spot occupied the summit of the forehead, and the hairs were completely bleached; and we have in remembrance a young lady who had one patch of leucosma on the side of the scalp, from which there issued a solitary lock of white hair. On the other hand, the surface of the skin may be bleached without implicating the growing hair.

Leucosma very commonly begins at the extremities of the body, as the fingers and toes; next in frequency it appears on the lips, the face, and neck; in the neighbourhood of the axillæ and groins; on the abdomen, and on the scrotum and penis. On the scrotum it sometimes assumes the form of longitudinal streaks. In India it has been observed to be more common on the sea-coast than elsewhere.

There is usually no symmetry of arrangement of the blotches; they are defined by a sharp edge, and the skin immediately around them presents a deep tinge of black, which subsides by degrees into the general duskiness of the melasmic skin. The leucosmic skin is in nowise altered in structure, but has the

appearance of being less vascular and more delicate in texture than the adjacent parts, and is evidently less sensitive to the impression of stimulus.

DIAGNOSIS.—The pathognomonic characters of leucosma are the whiteness or bleaching of the skin without alteration of structure; and, as we have seen, leucosma being in its essence a derangement of pigment formation, it is commonly associated with melasma to a greater or less degree. The white patches of elephantiasis and morphea alba always indicate a morbid alteration of structure combined with the loss of colour.

CAUSE.—Leucosma is a neurosis, and the result of weakened innervation of the skin, the excitant being commonly referrible to the organs of assimilation or reproduction. Occasionally, and especially in India, it may depend upon the operation of a local irritant. Of the twelve cases mentioned above, eight were examples of nervous debility, three of assimilative debility, and one of nutritive debility. And the remote predisposing causes were as follows: menstrual irregularity, excess of mental labour, climate of India, gastric disorder, sudden alternation of heat and cold, typhus-fever, and small-pox. In some instances several of these causes were successive.

PROGNOSIS.—Where this affection is in the main physiological, as it is in India, it is comparatively unimportant, excepting as a deformity. An Indian gentleman suffering under this complaint remarked that, in his case, the colour had returned on most of the original patches, but that new spots were developed from time to time. Even in Europeans the disease is not inconsistent with a moderate state of health of the body, and it only becomes serious from its neurotic sympathies.

TREATMENT.—Regulate digestion and secretion, give vigour to assimilation and tone to innervation, and at the same time apply a healthy stimulus to the skin. These are the general indications for the treatment of leucosma, as they are those for the management of the dyschromata in general.

To this end a regular and nutritious diet and healthful hygienic conditions materially conduce. Next tonics, digestive tonics, blood tonics, nerve tonics, and, at the proper time and in proper doses, the ferro-arsenical mixture. The local treatment should consist of cold ablutions daily, the use of soap and fric-

tion to the skin, and stimulant applications to the affected part ; such as lotions of the bichloride of mercury, acetum lyttæ, compound tincture of iodine, sulphurous acid, and frictions with a compound ointment of sulphur and tar.

CHAPTER XIX.

PHYTODERMIC AFFECTIONS.

THE PHYTODERMIC or DERMOPHYTIC AFFECTIONS are diseases involving the structure of the rete mucosum and epidermis, and they present the character in common of developing a morbid tissue resembling that of a fungous plant or mucedo; hence these diseases have also received the name of NOSOPHYTA. The seat of the morbid tissue is the rete mucosum and hair; and in the rete mucosum it gradually rises to the surface by the detrition of the horny epidermis and by the exfoliation of the lining membrane of the follicles, until it is found to pervade the whole thickness of the epidermic structure.

The morbid or phytiform tissue is composed of globular nucleated granules, and these granules have the properties of proliferation and growth; by *proliferation* they increase in number without change of figure; by *growth* they become elongated into diaphragmated cylindrical shafts, and have the power of throwing off shoots from point to point, and assuming a branched or phytiform character; the medium of growth being the division of their nuclei. In botanical language these elements are termed: the nucleated granules, *sporules*, or *seeds*; the cylindrical and ramified shafts, *mycelium*; and as they resemble in every respect mucedinous fungi, they have been classed with those vegetables, under the names of Microsporon, Tricophyton, and Achorion. The microsporon and the tricophyton are composed almost wholly of sporules, with little or no mycelium; the achorion is more complicated in structure, and consists of sporules or seeds, sporidia or seed-vessels, and mycelium. The difference between them seems to be one of nourishment: on the trunk of the body, where the follicles are small and only scantily supplied with capillaries, the microsporon is found; in the substance of the hair, also poor in nutritive fluids, the sporular tricophyton exists; but in the highly vascular hair follicles the achorion finds the supply of nutrition suitable for its greater growth and development.

And what is this phytiform growth? Is it, as we maintain, an alteration of structure of the elementary components or granules of the cell tissue of the rete mucosum? or is it an independent organism—a plant originating from a sporule or seed, conveyed accidentally to the skin, fixing itself in the skin, drawing nourishment from the skin, and growing in the soft cell-tissue of the rete mucosum, at the expense of the nutritive fluids of the skin, just as a lichen or a fern may grow upon the bark of a tree? Is it a parasite figuratively, as a blood-corpuscle or an epithelial cell may be a parasite, or is it a parasite actually? The latter is the theory maintained by many, and that theory is embodied in the expression “parasitic diseases of the skin;” and that no mistake should arise, the parasitic plants are arranged by the side of the parasitic animals, the *acarus scabiei* and *entozoon folliculorum*.

The question is important, not so much in a practical point of view as in its relation to physiology. We maintain that we have seen the cells of the rete mucosum passing through those stages of growth which have converted their nuclei into granules, the so-called sporules; we maintain that the granular condition is the normal foetal structure of the young epidermal cell, and that the morbid condition in question is an arrest of development of those cells at their foetal stage, and the cause of their consequent modification of destiny, no longer to rise through those higher stages of animalization which culminate in the production of horn, but doomed in their crude condition to the lowest function which belongs to immature organic matter, namely, proliferation. We can find no better word to express this degradation of structure than the term “granular degeneration.”

To return, however, to the diseases before us, this phytiform tissue is an undoubted fact; its seat is also admitted; we have now only to say that it constitutes the pathological element of four separate diseases, as follows:—

Favus,
Trichosis,

Sycosis,
Chloasma.

In favus, the phytiform tissue was first observed, and the fungus is termed *achorion Schoenleinii*;* in trichosis and sycosis

* *ACHOR* is a name given to a small follicular pustule of the scalp. The term is at present disused, in consequence of the difficulty of identifying with exactness the

the sporular form of the fungus is met with under the name of *trichophyton tonsurans*; while in *chloasma* the fungus is also sporular, and is named from that circumstance, and from giving rise to a furfuraceous condition of the epidermis, *microsporon furfur*, and *epidermophyton*. These diseases, therefore, having a common pathological element, admit of being grouped together, and constitute a veritable epiderminosis.

Besides their common pathological element, the epiderminotic affections have several other points of resemblance; namely, their seat in and around the follicles of the skin, their destruction of the epidermis and hair, and their epidemic and possibly their contagious nature. If the phytiform substance be a real plant, and the granules real sporules, the contagion of these diseases should be positive and unquestionable, which we cannot admit to be the case: and we are not helped in this matter by experiment; for the proliferous granules of aborted cells would retain their proliferous properties under favourable conditions, and might continue the form of growth which belonged to them, without giving sanction to the belief that that was their normal mode of transmission.

A strong objection to the mode of contagion admitted by the phytopathologists is involved in the fact that the disease begins, not upon, but under, the horny epidermis; and to reach the bed in which it grows, the sporule must have the power of perforating the horny cuticle, a process which we believe ourselves warranted in declaring a physiological impossibility, while another argument against the contagion theory is the symmetry of development of one of the diseases, namely, *chloasma*. Contagion by seed implies the growth of the plant wherever the seed falls; and in the case of the scalp and face, there is nothing opposed to this view in the mode of distribution of the morbid patches; but the symmetrical disposition of the patches of *chloasma* obeys another and a vital law, one appertaining to the individual, and indicative of an action of the nervous system: it is, in fact, a neurosis.

pustule intended to be defined. The Greek word *αχνη* signifies scurf or dandruff, *αχνη* meaning "chaff." The term would therefore seem to have been applied rather to the thin scale left by pustule than to the pustule itself. *Achorion* is a derivative of *achor*, and *Schoenlein* the name of one of the early observers of the dermatophyta, which were discovered by *Remak*, in 1836.

Favus and sycosis being diseases of the hair-follicles chiefly, and trichosis being a disease of the hair chiefly, their description will be found in the chapter devoted to the hair and hair-follicles. Chloasma is remarkable, principally, for the altered pigmentation by which it is accompanied, and is therefore treated of in the chapter on chromatogenous affections, although as an epiderminosis it also occupies the follicles of the skin, and the interfollicular rete mucosum.

CHAPTER XX.

AFFECTIONS OF THE NAILS.

THE NAILS are a part of the epidermis, and their disorders are referrible to a want of harmony with adjacent parts, to errors of development, growth, colour, or texture, and to inflammation of their producing organ, the matrix, and adjoining corium.

The nail is developed originally under the cuticle, and the root of the nail maintains that position for the rest of life; the edge of cuticle which borders the posterior wall is adherent to the surface of the nail, and is apt to grow forward with the nail to an inconvenient extent, sometimes covering it almost completely; the nail is as it were coated with a thin transparent layer, that may be compared to the wing of a bat; hence the term *pterygium unguis*.

Without attaining the extreme degree of growth implied by the term *pterygium unguis*, the cuticle of the posterior wall not unfrequently advances for a short distance on the nail, and then breaks away from the surface and curls back, sometimes as a whole, but more commonly in divided portions or narrow slips. These little torn shreds, which are as hard as horn when dry, are apt to catch against the clothing and give rise to laceration of the corium, and a painful state of the posterior wall of the nail; hence they have been termed *agnails*. And occasionally the posterior wall of the nail is swollen and everted, and more or less inflamed; a morbid condition which has received the name of *ficus unguis*.

In reference to development, the nail has sometimes been found wanting, and at other times its adhesion to the matrix is so infirm that it falls off from time to time, and is replaced by a new nail, which in the mean time has been growing beneath it; or the matrix may remain bald for a considerable time, *alopecia unguialis*. The fall of the nail has been termed *lapsus unguis*, and its loss may be the result of an aberration of physiological laws, or a morbid state of the matrix, the consequence of consti-

tutional disease, such as scarlatina, syphilis; or local injury, as a bruise, burn, frost-bite, &c.

Deformitas unguium, or faulty shape of the nails, results from defective nutrition and innervation; and the nail under these circumstances may be too long or too short, too narrow or too broad, and unnaturally raised or depressed either longitudinally or transversely. An abnormally curved or arched state of the nail is termed *arctura unguis*, while the arched and hooked nails so frequently seen in conjunction with the clubbed fingers of scrofulous and consumptive persons, are called *ungues adunci*. We have lately seen a shovel-shaped nail, the consequence of a prolonged attack of eczema; the nail produced during the continuance of the disease was little more than half the breadth of the original nail, and having grown nearly its full length, the older portion spread out at the extremity, like the fan of a shovel.

Supernumerary nails are occasionally met with in the form of a double nail, resulting from a tendency to bifid division of the unguis phalanx. The end of the finger is broader than natural, and the two nails, or rather the two wings of the double nail, become blended along the middle line.

Occasionally, from some accident of development, the nail occupies an *abnormal situation*, such as the extremity of an amputated finger, or the stump of an arm.

ABNORMAL GROWTH of the nails is sometimes evinced by extreme tardiness, at other times by rapidity, and sometimes by abundance or excess of growth. We have seen instances in which the elongation of the nail has been so torpid as to suggest the idea of an arrest of growth, while in others it has been unusually rapid. The nails often acquire an enormous size in the Barbadoes leg; and the extraordinary productions of this nature met with in bed-ridden persons are familiar to most of us. We have several such nails measuring two and three inches in length; and cases are recorded in which the nail of the great toe has reached five inches. One author states that he found in his patient a horn instead of a nail upon each great toe; and another author has devoted an essay to "*unguibus monstrosus*."

DISCOLORATION OF THE NAILS is sometimes seen as small round spots, or stripes of an opaque whiteness, *selene unguis*, also called *flores unguium* and *mendacia*; sometimes as dark

spots resulting from ecchymosis, the consequence of a bruise, and sometimes as transparent horny-looking spots, evincing the development of a tubercle of alphas in the matrix of the nail.

DEGENERATIO UNGUIUM.—A more important alteration of the structure of the nail is known by the name of *defœdatio et scabrities unguium*. The nails are discoloured and distorted in appearance, they acquire a dirty horn-colour, and separate from the matrix, the space beneath them being filled with a dry, horny, broken, and sometimes pulverulent mass of epidermic scales. This state of the nail is sometimes associated with alphas, but more frequently with eczema, and not uncommonly with eczema fissum of the tips of the fingers.

In another case the nails are reduced in thickness to a mere film, and are so soft and brittle in texture that they split and break with the most moderate pressure, *mollities et fissura unguium*.

Another change in the nails is a fibrous state of those organs, which appear to be made up of a thick stratum of fibres, closely packed together, but becoming loosened here and there, so that separate fibres are met with on the surface. The surface of the nail is necessarily rough, ragged, discoloured, and marked by numerous dark longitudinal lines; and, besides being very unsightly, adheres like a burr to any rough material with which it comes in contact.

Another variety of degenerated nail has the appearance of being *eroded*, or worm-eaten, *tinea unguium*, and sprinkled over more or less abundantly with hollow pits. This state of the nail, like the preceding, is very unsightly, and the sufferer applies for relief, rather on account of the ugliness of appearance, than from any real inconvenience. Unhappily, medicine can afford very little aid in these cases.

ONYCHIA.

ONYCHIA is an inflammation of the matrix of the nail, attended with suppuration and ulceration. Bound down by the horny nail, the swelling and suppuration give rise to great pressure on the sensitive matrix, and the pain is of the most intense

kind. Sometimes the inflammation sinks deeply into the soft parts, and the periosteum and bone are attacked; but at all times the disease is serious, from the presence of pain and the development of unhealthy granulations, which exude an ichorous, sanious, and foetid discharge.

Onychia may have its origin in local or in a constitutional cause. The local causes are external injury, a bruise, a splinter, a puncture, or a foreign body lodged beneath the nail; it is sometimes produced by the pressure of the fleshy wall against the lateral edge of the nail, causing that condition which is termed an *in-growing nail*. The more common constitutional causes of the disease are eczema, scrofula, and syphilis.

When especially obstinate and arising from idiopathic causes, and when, moreover, the morbid action sinks deeply into the tissues of the finger, the disease has been termed *onychia maligna*. Onychia maligna commonly begins in the follicle of the nail, and is attended with excessive pain and the secretion of an offensive discharge.

Onychia is not unfrequently accompanied with irritative fever, the consequence of severe pain and loss of sleep, and the constitutional disorder tends materially to the aggravation of the local disease.

The *diagnosis* of onychia is self-evident, the only disease developed in the same situation and at all approaching it in appearance, being *panaris*, or whitlow. Whitlow, however, is a simple phlegmon of the end of the finger, and does not, like onychia, begin beneath the nail; if it reach that situation, it does so only by extension.

The *treatment* of onychia must be local and constitutional, local to subdue the congestion of the inflamed part, to relieve the pressure, to give early exit to pus, and to stimulate to a healthy healing process; and constitutional, to remove internal causes of irritation, and maintain and support the powers of the system against the morbid influence of the local disease.

The general principles of local treatment are, position, maintenance of an uniform temperature, and exclusion of air by a dressing of basilicon ointment. If foreign bodies are present, they must be removed in the first instance; and if the evil be kept up by the nail, either in consequence of its thickness and density or of its pressure upon the inflamed part, the nail must

be scraped, and the offending parts gently cut away. It must be remembered that by scraping the nail may be reduced to the thinness and softness of cuticle, and, that in this way one of the chief difficulties in the treatment of onychia, and one of the chief causes of its virulence, may be swept away. We may thin the nail so as to reach the bed of the pus, and liberate the matter with ease; and the same operation practised along the middle line permits of the folding of the nail, and at once relieves the pressure of the edges of the nails on the lateral walls. It is useful in some instances to introduce a piece of dry lint between the tumid lateral wall of the matrix and the border of the nail. Exuberant granulations must be kept down by the application of a strong solution of nitrate of silver or sulphate of copper, and the part must be dressed with a desiccative or mildly stimulative ointment, such as the benzoated ointment of oxide of zinc, the unguentum resinæ flavæ, or an ointment of Peruvian balsam.

The *constitutional* treatment of onychia must be regulated according to the indications presented by the general system. If the evil in the constitution be the eczematous or strumous diathesis, if it be syphilitic or cachectic, the treatment must be adapted to those states of the organism. Under all circumstances digestion and secretion should be regulated, and we should keep up the powers of the system by nutritious diet, and by tonic medicines, to enable it to resist the attack of disease, and to furnish the means of restoration of the disorganized parts to a healthy status. The remedies the most likely to be needed are, quinine and iron, iodide of iron, and the mineral acids with vegetable bitters.

CHAPTER XXI.

AFFECTIONS OF THE HAIR SYSTEM.

THE HAIR SYSTEM is composed of two parts, the *hair* itself, and the *follicle* in which the hair is implanted; and the diseases of these organs are represented by their aberration from the normal standard of structure and function. In the case of the hair, aberration may be one of *quantity*, *length*, *colour*, and *texture*; and in the case of the follicles, there may be *excess*, or *diminution*, or *alteration* of secretion, or an organic change of structure.

The disorders of the hair having reference to quantity and colour are, hirsuties, hairiness, or excess of hair; alopecia, or deficiency of hair; and canities, or whiteness of hair. The disorders of texture, remarkable especially for brittleness of structure, are fragilitas crinium, and trichosis or ringworm. And the disorders of the follicles are, simple alteration of secretion, and an organic change in the structure of the follicle constituting favus, kërion or scalled head, and sycosis.

In a tabular form the diseases of the hair system may be arranged under three heads, as follows:—

1. *Diseases of quantity and colour.*

Hirsuties,
Alopecia vulgaris,
" areata,

Alopecia calva, vel calvities,
Canities.

2. *Diseases of texture.*

Fragilitas crinium,
Trichosis.

3. *Diseases of follicles.*

Morbi sebacei,
Favus,

Kërion,
Sycosis.

HIRSUTIES, or hairiness, is not intended in this place to embrace physiological aberrations of development of hair, but

simply those that are pathological in their nature, and are referrible to a morbid cause. As all parts of the body, with the exception of the palms of the hands and soles of the feet, are organized for the production of hair, and our normal type of organization in that respect is to be looked for among the inferior animals, we may occasionally meet with examples of extraordinary hairiness upon the shoulders, on the loins, upon the chest and abdomen, and upon the limbs; and not only in men, but also in women. The appearance of hair in women obeys also another cause, namely, the cessation of function of the ovaries, a condition that serves to unsex them and bring them under the operation of laws which govern the opposite sex. These, however, being examples of physiological phenomena, are not the matter which we propose to treat of here.

The physician is appealed to for the relief of hirsuties chiefly in the case of women, and the common seat of the excess of hairiness is the upper lip, the chin, the maxillary and submaxillary region, the chest, the arms, and sometimes the entire body. The age of the patients may range from childhood to twenty-five or thirty, and sometimes to a later period; and the causes which will be found the most common in the production of this state are nervous and nutritive debility. In seven cases now before us, nervous debility, anxiety, and affliction, are the remote predisposing cause in four; deferred and arrested menstruation in two; and defective nutrition of the skin in the remaining one, a girl of ten years of age, in whom the skin is dry, discoloured, brown, and unperspiring. In one of the cases, menstruation was protracted until the age of sixteen, the place of that function being taken seemingly by one of abnormal hair-formation; but when the menstrual function was fully established, the hair ceased to grow, and gradually fell off until it entirely disappeared.

It is remarkable, and worthy of note, that some cases of alopecia are preceded by a superabundance of hair, and the thought is suggested that the skin may become exhausted by excessive function. We throw out the idea for the student's reflection.

The *treatment* of hirsuties must be directed to the removal of the remote predisposing cause and of the debility engendered by that cause. After the general functions of the body have been regulated, we have derived advantage from small doses (two or three minims) of Fowler's solution, and the local use of the juni-

per-tar soap, and active ablutions with cold water. Depilatories should be discountenanced as much as possible, and especially plucking out the exuberant hairs with tweezers, as remedies calculated to injure the skin, to increase the evil, and frequently to add to the existing deformity a papular eruption induced by irritation of the hair-follicles. The use of the razor in aggravated cases is more rational, and sometimes necessary.

ALOPECIA, derived from *αλωπεξ*, a fox, because foxes were often seen to be more or less divested of hair when suffering under the mange, is used at present as the generic designation for thinning of the hair and baldness, and offers three varieties: namely, simple thinning of the hair, or alopecia vulgaris; total loss of the hair of limited extent, alopecia areata, or simply area; and total loss of the hair of the scalp, and sometimes of the entire body, the result of disease, and not of old age, alopecia calva, or calvities. This form of calvities may be further distinguished as calvities juvenis, in contradistinction to the baldness of old age, calvities senilis.

ALOPECIA VULGARIS may exist to a moderate degree, as the result of a simple fall of the hair, *defluvium capillorum*, at the change of the seasons or under the influence of alterations of health; or it may proceed to the extent of inducing a state not far removed from calvities, the distinction between alopecia and calvities being, as we have already shown, the presence of hair, although scanty in quantity, in the former, and its complete absence in the latter.

Alopecia is most frequent on the scalp, but is occasionally met with in the beard. It owes its origin to a defective state of nutrition of the skin, and is most commonly the result of nutritive debility; at other times debility of the nervous system is the prevailing cause; less frequently it arises from assimilative debility; and occasionally proceeds from local debility or hereditary predisposition. The scalp is sometimes pale, sometimes thin, and sometimes discoloured; sometimes the cuticle is raised in scurf, sometimes it is smooth and polished, sometimes moist, sometimes dry and parched, and not unfrequently the follicles are distended, and, as it were, choked with epithelial exuviae. These are so many indications of unhealthy function of the skin, and are suggestive of the means which should be adopted for the relief of the disorder in chief.

Alopecia is frequently accompanied by other changes in the hair, arising from a similar cause to that which gives rise to itself; for example, canities, area, calvities, alopecia barbæ, and hirsuties. The latter complication is curious, and shows that the alopecia is governed by a constitutional cause, by a disturbing cause, equally abnormal in the two processes, and resulting in an atrophy of the hair-bulbs in one situation, and a simultaneous hypertrophy of the hair-bulbs in another. Other complications of alopecia are: pityriasis, scleroderma, inflammation of the follicles, steorrhœa, and general cachexia of the skin, visible in other parts besides the scalp. Further, it is not uncommon to find alopecia in association with melanoderma and melasma oculi.

Females are more liable to alopecia than are males; their susceptibilities are greater, and they are more open to the influence of disturbing causes. In one hundred cases, sixty-three were females, and thirty-seven males; but this great difference is not the consequence of constitution alone, being partly referrible to the greater importance of a healthy head of hair to females than to males, and the greater care which is usually given by them to personal appearance. The age at which alopecia is most frequent is between twenty and thirty; in the one hundred cases already referred to, sixty-three were of this age; while between fourteen and twenty, the number was twenty. Of the same number—namely, one hundred—eighteen cases had existed at the time of application for treatment between five and ten years; seven between ten and twenty years; while two had lasted twenty-two and twenty-six years respectively.

The *treatment* of alopecia is foreshadowed in the foregone delineation of its causes. There is local debility, and commonly general debility. When the latter is evident, the general principles of treatment applicable to cutaneous diseases must be adopted: the secretions must be regulated; tonics may then be administered, chalybeates, if there be anæmia; and when the tone of the skin is evidently at fault, and where there exists defective nutrition of the skin, arsenic may be given, by means of the ferro-arsenical mixture, in doses of two to three minims, three times a day, with meals.

The local treatment must consist of alterative and tonic applications; for example, stimulants, either in the form of lotion or pomade, in some cases preceded by a thorough saponaceous ablu-

tion with the juniper-tar or petroleum soap. In addition to this plan, plentiful combing and brushing, with the view of stimulating the circulation and innervation of the skin. The best lotion for alopecia is the following: \mathcal{R} olei amygdalarum dulcium, liquoris ammoniæ fortius, āā ʒj ; spiritus rosmarini, ʒ vj ; misce. Or the following pomatum: \mathcal{R} unguenti stimulantis, unguenti hydrargyri nitrico-oxydi, āā ʒij ; adipis purificati, ʒ iss ; olei essentialis amygdalæ amaræ, ℥ij ; misce. The formula for the unguentum stimulans is as follows: \mathcal{R} cantharidum pulveris, ʒ vj ; adipis purificati, ʒ ij ; macera, cum leni calore, per horas viginti quatuor, et per chartam bibulam, cola. It is hardly necessary to remark that this stimulant ointment is too strong for use otherwise than in a diluted form.

ALOPECIA AREATA, or AREA, is a total loss of the hair in a circumscribed and circular patch, and sometimes in the form of an elongated band, which has been compared to the trail of a serpent; hence the term *ophiasis*. The fall of the hair in area takes place suddenly, generally unobserved by the patient; and the first intimation he receives of its existence is the sudden discovery of a bald spot. The denuded portion of the scalp is remarkable in appearance; it is white and polished, evidently less vascular than the surrounding skin, less sensitive, thinner, depressed towards the centre, and entirely divested of hair. The case is not one of simple casting of the hair, as in alopecia; it is in reality arrested formation of hair; the formative function has ceased, and hair is no longer produced, nor is it capable of production until a more healthy condition of the skin be restored, until it recover its normal vascularity and sensibility, and with those conditions, its healthy nutrition. Pathologically, we must regard area as a suspended innervation, as a kind of paralysis of innervation; and the other features of the disease follow upon this exhausted state of the nerves of the part; circulation is weakened, nutrition is suspended, and the function of hair production and secretion is at an end.

In area we are impressed with the conviction that the morbid phenomena must begin with a nerve, that the disease is, in fact, a neurosis, and that the more obvious and appreciable signs of the disease are simply its symptoms. In further support of this view, we have the fact of area being more frequently unilateral than bilateral; and where it assumes the riband form, it com-

monly follows the course of a nerve. But area is not limited to the scalp; it is met with also in the beard, the whiskers, and the eyebrows, and occasionally also on the body and limbs.

The patch or disk of area is commonly single; more frequently, however, there are two, sometimes three or four, and occasionally as many as twenty on the scalp. Their ordinary size is half an inch to one inch in diameter; sometimes, however, they form a patch of larger dimensions and irregular figure, especially on the occiput; occasionally two or three disks are linked together, and form a continuous band, as in the case of ophiasis; and sometimes the morbid action, beginning with a few isolated disks, is quickly propagated to the entire scalp, or even to the entire body, constituting calvities.

Area is more common in the female than in the male sex, but occurs at all periods of life, from the age of two years to sixty, the range of greatest frequency being from five to forty years. As may be inferred from its pathological nature, it is always slow in its progress, lasting several months, and more frequently years. Of eighty cases, nine had lasted between five and ten years at the time of application for treatment; five had resisted treatment between ten and fifteen years, and two had been in existence between fifteen and twenty years. In reference to cause, fifty-seven of this number were dependent on nutritive debility, eleven on nervous debility, nine on assimilative debility, while three owed their origin to local debility. The remote predisposing causes in these cases, arranged in their order of frequency, were as follows: scarlatina, rubella, and whooping-cough, organic disease, anxiety, fatigue, and affliction, pregnancy and parturition, rapid growth, anæmia, neuralgia and nervous shock, deficient food, climate and seasons, congenital weakness, deranged menstruation, fever, and eczematous diathesis. The local injuries that had resulted in area were: accidental avulsion of the hair, stinging by bees, and a bruised wound.

Area commonly exists independently of any other form of disorder of the skin, but is occasionally combined with other affections; for example, with alopecia vulgaris, pityriasis capitis, eczema, canities, trichosis tonsurans, and alpecia. We have also seen it associated with achama oculi.

The return of hair upon the bald patches of area is always slow, but sometimes more rapid than could be supposed from a

view of the nature of the disease. Nevertheless, the restoration of the hair is greatly influenced by the predisposing cause; after pregnancy the hair has reappeared in from one to three months; this may be regarded as a case of accidental lowered vitality; but when the constitutional powers of the patient are exhausted, a longer time will be required. It is also worthy of remark, that, on its reproduction, the hair is usually white or fair, like that of an infant; but as it obtains an increased power of growth, the natural tint of the adult is gradually restored.

The *treatment* of area, as of alopecia, calls for a generous and appropriate diet, with the aid of tonics, general and specific, and the local use of stimulating remedies.

If fifty-seven out of eighty cases owe their origin to nutritive debility, nearly three-fourths of the cases of area will require a generous and nutritious diet, the aid of medicinal tonics, and, in the event of no other indications being present than that of defective nutritive power, arsenic, in doses of two minims thrice in the day. The same principle of treatment is applicable to another eighth of the cases, namely, those dependent on nervous debility; therefore nearly seven-eighths of the whole come under this method of management. In the smaller number of cases dependent on assimilative debility, the digestive organs must be regulated before the tonic regimen be commenced; and in the small fraction of cases dependent on local causes alone, we may, perhaps, be contented with local treatment.

As a local, and possibly a general derangement of the nerve-tissue constitutes the foundation of area, we shall find phosphoric acid of value as an element of our tonic remedies, and especially that most perfect of all neurotonics, arsenic, administered in combination with iron, as in the composition of the ferro-arsenical mixture already mentioned (page 87.)

The *local* remedies applicable to area are, pencilling with acetum cantharidis, friction with the strong unguentum stimulant (page 374), painting with the compound tincture of iodine, or with the oleum sinapis essentielle; while in some cases of an obstinate kind we have derived most beneficial results from croton oil, both in tincture and in pomade.

ALOPECIA CALVA, or CALVITIES, requires to be distinguished by the addition of the word "*juvenis*," to avoid its confusion with calvities senilis, the natural consequence of old age. Cal

vities juvenis is a total absence of hair, not limited, as in area, to a few patches, but extending to the entire head, sometimes to the eyebrows, the eyelids, and face, as well as to the head, and sometimes to the entire body. The relation of this form of baldness to area is shown by the fact of its often beginning as area, and in some instances alternating with that form of the affection. One of our patients, aged twenty-four, had area in childhood; the hair returned to its normal state, but in a recent attack not a hair of the body has been spared; and another, now suffering from area, had an attack of calvities capitis ten years before.

In twelve cases of calvities juvenis, five affect the head alone, four the eyebrows, the eyelids, and the face, together with the head, and three the entire body. The ages of these patients range from five years to forty-one; five being under twenty, two between twenty and twenty-five, four between thirty and thirty-five, and the remaining case, forty-one. The sexes are evenly divided, and the duration of the disease ranges between four months and eleven years; in five the duration is under one year, and in three it exceeds five years.

The predisposing cause in eleven of the twelve cases is nutritive debility, that of the remaining case, nervous debility, the consequence of anxiety, and accompanied with melasma oculi. The remote predisposing causes are, congenital debility, scarlatina, rubeola, parturition and pregnancy, neuralgia, mental anxiety, and climate of India.

The evidence of defective nutrition of the skin is more obvious in calvities juvenis than it is in area; the scalp is always pale, remarkable for its thinness, and somewhat insensible. The thinness of the scalp approaches often to a state of atrophy, the skin is more or less transparent, the venous plexus of the scalp is visible through it, and is nearer the surface than natural; and the sutures of the cranium may be traced with ease; moreover, a strong stimulant application produces less effect than it would upon a healthy head. Again, when the hair begins to appear, it is apt to be white at first, and upon attaining a fuller and hardier growth, to resume its natural colour.

There is evidence also of the defective nutritive power being in some instances rooted deeper than the surface; in one case the cranium was imperfectly developed, and the child was feeble in intelligence. Other indications of degradation of nutrition

were perceptible in a gentleman aged thirty-two, in whom there existed also scabities unguium, while in another case the disease had been preceded by trichosis tonsurans. The exhausting consequences of scarlatina and rubeola were shown in three of the cases, and that of intense neuralgia following scarlatina in one. The influence of the uterine sympathies on the organism is exhibited in one of the patients, aged forty-one, who was attacked with area at thirty-three, with calvities totius corporis after her first parturition, and again during her second pregnancy, the hair having returned in the mean time.

The *treatment* of calvities is identical with that of area; but we may note the beneficial effects of the juniper-tar soap as a means of ablution of the skin, and of preparing a fresh surface, previously to the application of the stimulant lotions and unguents. In these cases we have found chloroform an useful addition to our stimulant remedies; while our chief reliance is on arsenic as an internal remedy.

CANITIES.—Under the head of Canities it is not our intention to enter upon those aberrations of colour of the hair that are purely physiological, nor to treat of the whiteness of colour that belongs naturally to advanced age, but simply to discuss the blanching of the hair, which comes before its proper time, and is met with in younger persons. In these cases there is commonly no alteration of quantity or texture of the hair, but a number of white hairs are found dispersed among the rest. These hairs are sometimes white from end to end, as though the colour had been discharged at once throughout their whole length; sometimes, and more rarely, they are white only towards the root, their whiteness being the result of growth. There is no other difference of character traceable in their appearance; they are met with scattered among the other hair, but are sometimes more abundant upon one side or upon one region of the head than upon the rest.

Morbid canities is more common in the female than in the male: of eleven cases of which the register is now before us, nine are female and two male. The ages range between fifteen and forty, three being under fifteen, and three under thirty. Three only are associated with other derangements of the hair, namely, alopecia; two having alopecia of the head, and one alopecia of the beard.

The governing cause of the morbid condition of the hair is nutritive debility in seven cases, assimilative debility in three, and nervous debility in the remaining one; the remote predisposing causes being as follows: over-rapid growth of the body, headache, cold climate, parturition, and deranged menstruation.

The principle of treatment of canities is to remove the causes of debility existing in the constitution, by tonics, especially chalybeates and phosphoric acid, and, where defective nutritive power prevails, by means of the ferro-arsenical mixture, and to stimulate the scalp locally by abundant brushing, and by the use of some mildly stimulating lotion, such as the ammonia lotion advised in cases of alopecia.

DISEASES OF TEXTURE.—Passing now from diseases of quantity and colour to disorders of texture, we are reminded of the physiological qualities of the hair, the most remarkable of these qualities being toughness and elasticity. These properties are obviously due to the perfection of elaboration of the cell-tissue of which the hair is constructed; the soft mucous cells of the rete mucosum are, by virtue of the power of elaboration which belongs to cell life, converted into the horny tissue of the cuticle, and at the same time the analogous cells of the pulp of the hair are transformed into the still more horny, dense, and fibrous structure of the hair. But if we suppose a deficiency of vital power in these formative cells, the result must be imperfect elaboration and the production of a tissue which is wanting in the properties that normally belong to it; that, in the case of the hair, it may be neither tough nor elastic, but, on the other hand, may be brittle and fragile. Such a morbid condition of the hair does, in fact, occur, and a state of *fragility* of the hair sometimes presents itself to our notice, and demands our attention.

FRAGILITAS CRINIUM is met with in two well-marked forms, one in which the hair of the head, or of the beard, breaks upon the most moderate traction, as in the act of combing and brushing, and another in which a certain amount of toughness remains, which resists complete rupture, but makes itself evident as a partial break or bruise of the shaft of the hair. In the latter case an individual hair may present a series of bruised spots, occurring at short intervals throughout its entire length, and giving it a jointed appearance. On close examination the cuticle of the hair is found to be broken through, together with the

exterior of the fibrous portion, leaving the central part of the fibrous portion intact; the broken ends of the fibrous structure stand out like the hairs of a brush, and, as remarked by Dr. Hermann Beigel, who has also observed this condition of the hair, the broken spot is larger than the rest of the diameter of the hair, and resembles two outspread brushes meeting each other by their ends. Furthermore, these bruised and broken spots are generally white or greyish in colour, and resemble particles of scurf dispersed among the hair. It is this unpleasant appearance that first attracts the attention of the patient, and induces him to seek our counsel for its relief.

Like other defects of structure, *fragilitas crinium* originates in nutritive debility, and calls for the same method of treatment as that which is applicable to canities. A physician who lately consulted us for this state of hair informed us that it began while he was pursuing his studies in Edinburgh, that he recovered during a short residence in Australia, but that it reappeared on his return to Scotland.

TRICHOSIS, or TINEA, or COMMON RINGWORM, is a disease of the hair, of the epidermal lining of the hair follicles, and of the adjacent interfollicular epidermis. The hair and the epidermis are altered in structure; the hair is thin, shrivelled, discoloured, faded, bent, and brittle, breaking off close to the skin, as though it had been eaten through by the grub of the clothes moth, or *tinea*; or had been rudely shorn, hence the term *tonsurans*; and the epidermis is dry, laminated, and furfuraceous, forming a thick uneven layer on the surface, and distending the follicles by its accumulation.

The disease presents some variety of appearance, having reference to distribution and degree. It commonly occurs in round patches, varying in size from half an inch to two inches or more in diameter; this is its *aggregated* form; at other times it is *dispersed* over the scalp in small spots, each involving from two to ten or twelve hairs. The varieties in degree are manifested by the force of the disease being expended chiefly on the interfollicular epidermis, the epidermal lining of the follicle, or the hairs. Other varieties result from its situation on the scalp or on the body or limbs, and also from the presence of inflammation in various degrees, and giving rise to simple congestion or suppuration.

Trichosis tonsurans, or tinea capitis, is the common and typical form of ordinary ringworm of the scalp; it occurs in the shape of round or oval-shaped patches, slightly raised, covered with a thick stratiform layer of furfuraceous scales, sometimes papillated from the prominence of the follicles, and more or less denuded of hair, any hairs that remain on the patch being of a yellowish-grey colour, dry, shrivelled, bent, and withered; sometimes several small bundles are matted together, and lie entangled with the furfuraceous base; but more frequently the hairs are broken off close to the surface of the patch. This is the *porrigo scutulata* of Willan, the term *porrigo* being synonymous with furfuraceous, and *scutulata* significant of the resemblance of the patch to a *scutum*, or shield.

The scuta of trichosis tonsurans commonly appear on the summit of the head; sometimes there is but a single patch, sometimes three or four; or there may be one or two large scuta, and many small ones scattered over the surface. Occasionally, in slighter attacks, the patches may all be of the smaller kind referred to under the head of trichosis dispersa; while in a chronic case the disease may spread over the entire scalp, trichosis diffusa, and leave no more than a fringe of hair around its circumference.

Trichosis tonsurans may be complicated by inflammation of the diseased patch; and the inflammation may be erythematous, exudative, or pustular. Simple erythema may occasion thickening of the patch. The exudation, when it occurs, is mucopurulent, and agglutinates the furfuraceous scales and morbid hair into a mass; and the pustules, when they burst, produce a similar result.

TRICHOSIS PITYRIASICA.—In the common, aggregated, or scutiform variety of trichosis tonsurans, the surface of the skin, represented by the epidermis, and the follicle and hair, or the deeper portion of the skin, are equally affected, and the diagnosis of the case is very simple; but in milder cases the epidermis alone may be attacked, and the hair and follicles more or less completely escape; this constitutes a pityriasic form of trichosis. The pityriasic patches may occur at the beginning or at the end of an attack of the ordinary disease; they may be present on parts of the scalp, in association with the scutulate form, or they may occur on one member of a family of children, while others

of the same family are suffering from the ordinary form of the disease. The student must bear this in mind in making his diagnosis.

TRICHOSIS ANNULATA.—When trichosis attacks the body and limbs, it assumes a superficial and centrifugal character; it spreads by the circumference, while the erythema subsides in the centre, and thus forms a ring of varying dimensions sometimes half an inch, and sometimes many inches in diameter. The border of the ring may be simply a raised erythematous ridge; more frequently it presents a row of papulæ, and sometimes a range of minute pustules. The trichosis or tinea annulata may therefore be erythematosa, vel papulosa, vel pustulosa, while the central area remains more or less pityriasisica.

The spreading character of trichosis annulata is supposed to be due to the absence of the deep follicles and large hair-pulps of the scalp; and this, no doubt, is in some degree the fact; but instances are not rare in which the same centrifugal progression is seen upon the scalp, where the rings are more prominent than on the rest of the skin, and where they are frequently accompanied with a double and even a treble row of pustules.

In trichosis annulata it is not uncommon to find the circumferential ring to have become the point of departure of a second ring, and the second ring of a third; while the area of the ring is commonly of a yellowish colour, slightly furfuraceous, and sometimes papular. And occasionally, when several rings occur in the same region, their segments are apt to become intersected, and irregular forms arise, which have received the name of *trichosis gyrata*.

Trichosis annulata may be associated on the same person with trichosis tonsurans, or it may exist where no other form of trichosis is present. It is the form in which the disease is met with in adults who have associated with children affected with ringworm; and it frequently attacks one member of a family, while another may have the commoner trichosis tonsurans. The rings of this disease are usually solitary; sometimes several are dispersed over different parts of the body; but they are never numerous.

The relative frequency of the three varieties of trichosis, namely, tonsurans, annulata, and pityriasisica, in seventy cases was: fifty, tonsurans; fifteen, annulata, and five, pityriasisica. The

proportion of males to females was forty-two to twenty-eight; the age of origin, two years to fourteen, and the period of duration as follows: under one month, nineteen; between one month and six months, thirty-four; between six months and one year, nine; and between one year and four years, eight. The annulate forms are found at the extremes of age, beyond the limits of the tonsurant variety; in one instance, at three months, in another at six months; and at the opposite extremity, at the ages of sixteen, nineteen, twenty-six, and forty-six. In two of the seventy cases tonsurant and annulate forms were present together in the same person, while in one the annulate form had assumed the pustular character. There were also in these seventy cases three examples of complication with eczema and two with pityriasis.

DIAGNOSIS.—Trichosis tonsurans is known by the alteration of appearance of the hair, by the bare places which are left on its breaking off near to the level of the skin, and by the furfuraceous, elevated, and sometimes papillated unevenness of the surface of the morbid patches. Trichosis pityriasisica is also recognized by the breaking of the hairs which grow upon the furfuraceous spots, by the small extent of the spots, their seat on the scalp, and their occurrence in association with cases of the tonsurant variety of the disease. Trichosis annulata is also known by negative rather than by positive characters, its solitary development, and its association with ringworm in other members of the family or community in which it occurs.

CAUSE.—Trichosis is a disease of nutritive debility, and is essentially an arrest of development of the hair-cells and cells of the rete mucosum. The cells retain their primitive molecular or granular character; and the granules, taking on a proliferous growth, are converted into a tissue closely resembling that of a mucedinous vegetation. The state of the hair and of the epidermis composed of this phytiform tissue may be expressed by the term "granular or phytiform degeneration;" and their composition explains the brittleness of the hair, and the loose and furfuraceous condition of the epidermis.

Looking to the predisposing causes of the disease, we find them arranged in the following order: measles and scarlatina, deficient diet, anæmia, weakly parentage, fever, change of climate, and in the instance of an adult, anxiety and affliction.

But there are not wanting those who see in the phytiform tissue already noticed a true plant of the mucedinous type, composed of branches and sporules or seeds, and termed trichophyton tonsurans, and who believe the cause of the disease to be the sporules of the plant, which, alighting on the skin, perforate its horny layer, and reaching the more succulent rete mucosum, vegetate and grow at the expense of its juices, sending up branches through the pulp of the hair into its shaft, and destroying its normal tissue for its own proper nutrition. The trichophyton, in this view of its nature and habits, is a parasitic plant, originating extraneously to man, conveyed to him by seeds, and pursuing an independent existence at the expense of his tissues, producing in its turn seeds in vast numbers, and becoming, by means of these seeds, the source of further contagion. It is not denied that there may be constitutional causes favouring the growth and development of the plant; indeed, causes of this nature are necessary to prepare a morbid soil for a morbid growth. We may simply say that the parasitic theory does not commend itself to our belief, and the facts admit, in our opinion, of another and more scientific explanation.

PROGNOSIS.—There is nothing grave as touching the life of the individual in trichosis; but the disease is obstinate, as diseases of constitutional debility commonly are, and its evils are increased by an unnecessary amount of alarm with regard to its contagious nature. We do not wholly deny the contagion of ringworm, but we doubt it seriously, and the more so, as all the phenomena which are usually taken to be evidence of contagion admit of an explanation equally favourable to the opposite theory. The public are impatient with regard to ringworm, and are apt to magnify the vexations attending it more than they deserve. It certainly may run through an entire family, but it never attacks adults in its most severe or tonsurant form; and in reference to duration, that may be stated as being generally under twelve months.

TREATMENT.—The management of trichosis calls for a generous diet and generous regimen, with the aid of tonic medicines, and a local treatment of the tonic or stimulant kind. Well-fed and well-tended children, even when of delicate parentage, never suffer from ringworm, and a nutritious diet cures it without the assistance of medicine. It commonly occurs in schools, where

children are generally underfed, but sometimes under the eye of parents, whose knowledge of the proper feeding of children is not equal to their wisdom in other respects.

The tonics which we principally have recourse to are the nitromuriatic acid with tincture of orange-peel, the phosphoric acid with tincture of the sesquichloride of iron and tincture of orange-peel, or, as a remedy enjoying the double quality of an assimilative tonic and a cutaneous tonic, the ferro-arsenical mixture.

The local treatment consists in ablutions with the juniper-tar soap, plentiful brushing and combing, and inunction with the unguentum picis liquidæ, vel juniperi, or with the nitric oxide of mercury ointment, diluted in the proportion of one to three parts. The morbid action in the skin, and the inflammation which sometimes accompanies it, are of the low type, and require stimulating treatment: hence all the stimulating applications in the pharmacopœia are useful when employed with moderation, from the most refined formulæ of the mercurial remedies down to the old woman's ferrugino-astringent atramentum. Some practitioners prefer a solution of bichloride of mercury; some the acetum cantharidis, or simple acetic acid; some the compound tincture of iodine, the two latter especially for trichosis annulata; and some an iodine ointment.

The sectaries of the parasitic theory, using the same remedies, call them parasiticides, and believe that they effect a cure by immolating the parasitic vegetation; and the medical parasiticides of France go the length of pulling out every individual hair from the diseased skin, and after clearing a small space, saturate it with the bichloride of mercury solution. They find this process more speedy and certain, not to say painful, than the application of simple stimulant remedies; but they forget that, in tearing the hair from its pulp, they are merely employing a stimulant remedy of a very effectual kind, and one which has been found most useful in other diseases of the hair-follicles, besides trichosis.

DISEASES OF THE HAIR-FOLLICLES may either be simple derangement of function of the sebaceous glands of the follicles, such as steorrhœa or excess of secretion, and narcosis folliculorum or torpor of secretion, or they may be an organic change of structure of the epidermal lining of the follicle, constituting

favus; a suppurative inflammation of the follicles of the scalp, called kërion; or a congestive and suppurative inflammation of the hair-follicles of the face, namely, sycosis.

THE MORBI SEBACEI FOLLICULORUM CAPITIS originate in a chronic inflammation of the follicles, attended in some instances with the production of a morbid secretion which collects among the roots of the hair, and forms a stratum of some thickness on the surface of the scalp, and in others with an arrest of the sebaceous secretion; an accumulation of dry epithelial exuvie in the follicles, and a furfuraceous desquamation of the cuticle. The former of these morbid states is termed stearrhœa, the latter narcosis folliculorum. Both are accompanied with pruritus, which is sometimes very troublesome; and the latter disease gives rise to the fall of the hair and consequent alopecia.

The treatment of these morbid conditions of the hair-follicles is, ablution and friction with the juniper-tar soap, and the subsequent inunction of a pomade consisting of one part of the nitric oxide of mercury ointment to two of elder-flower ointment or simple benzoated lard. To this may be added brushing and combing in abundance, with the view of setting up a more active circulation and innervation of the scalp.

FAVUS is a disease of the epidermal lining of the follicles of the hair; it is characterized by the formation of yellow disks around the apertures of the follicles, encircling the hair, and increasing to the diameter of several lines. The disks are slightly raised, flat or somewhat concave on the surface, and bordered by a prominent rim, so as to suggest the idea of a cup. The substance of the cup is formed in the rete mucosum, and is therefore covered by the horny layer of the epidermis; hence the smoothness of the face of the cup, the well-defined aperture in the centre perforated by one or two hairs, the elevated growing border or rim of the cup, and the decline of the surface beyond the edge of the cup to the level of the sound skin. Moreover, the integument adjoining the cup is red and congested, and the cuticle furfuraceous.

When favus occurs in isolated cups, scattered over the scalp, it is termed *favus dispersus* or *favus urceolaris*; but when a number of adjoining follicles are affected, it is called *favus confertus*. Sometimes the cups of *favus confertus* constitute a round or oval patch of moderate dimensions, *favus scutiformis*,

and occasionally the disease spreads over the whole head, to the margin of the scalp. The conformation of the cup is most appreciable in the isolated form of the disease; where a number of cups approximate by their edges, *favus cohærens*, they resemble somewhat a honeycomb, hence the term *favus*; and in a still more confluent form the boundary-lines are obliterated, and the raised and cupped borders are only distinguishable around the circumference of the mass.

Favus is most commonly met with on the scalp, but occasionally on other parts of the body; for example, the pubes, the limbs, and even beneath the nail. It may remain for some time in the state just described, but after awhile the yellow matter of the disk desiccates, and constitutes a subcuticular crust; the crust breaks over its concave surface, and the pale-yellow desiccated substance of which it is composed is dispersed in small fragments among the hair, the central portion of the disk remaining threaded upon the hair by which it was originally perforated. These changes are necessarily accompanied with pruritus and irritation of the skin, and the irritation of the skin is commonly followed by a muco-purulent exudation and suppuration, so that, in an advanced stage of the complaint, the scalp may be covered with a heterogeneous mass of yellowish-gray fragments, broken crusts, scabs, moist discharges, matted hair, and ulcerations, in the midst of which the indications of the primary disease may scarcely be discoverable, and require to be sought for in the circumference of the patch. Moreover, the lymphatic glands are apt to enlarge, and sometimes to suppurate.

If a crust of favus be lifted from its bed, it will be found to be convex and slightly funnel-shaped upon its under surface; the compression exercised by the cuticle has checked its prominence outwardly, and the continued accumulation of the yellow matter has caused a deep hollow on the surface of the skin; the basement membrane is unbroken; there is no lesion of continuity of the derma, but the continued pressure has occasioned absorption of the papillary layer, and has forced open the hair-follicle even to the root of the hair, and in some instances caused absorption also of the hair papilla, and consequent fall of the hair. On the removal of the crust, the derma gradually rises to nearly its original level, but is commonly so much disorganized by the compression which it has undergone, that the

hair-follicles are destroyed, and it remains for ever after a bald cicatrix-like spot. If to this serious damage to the skin be added the consequences of ulceration, we may form an idea of the ultimate permanent injury inflicted by favus. The cicatrices remain for the rest of life; the integument is attenuated; the follicles are obliterated; and permanent baldness is the result.

At the commencement of favus the hair is unaffected, and it commonly retains its healthy character until it is uprooted by the disease; nevertheless, it is sometimes altered in its appearance and texture, and is found to have undergone in a slight degree the kind of degeneration of structure which is met with in trichosis. And if for one moment we compare trichosis and favus, we shall perceive at a glance that the hair in one and the follicle in the other, is the primary seat of the disease. In pathological nature, these diseases resemble each other very closely: both present a phytiform degeneration of cell-structure, and both are claimed by the phytopathologists as parasitic diseases, the parasite of trichosis being, as we have seen, the trichophyton tonsurans, and that of favus the achorion Schœnleinii, the yellow mass of favus, according to these pathologists, being an accumulation of the vegetation of the achorion, consisting of stems, branches, and sporules.

We have elsewhere endeavoured to prove that the yellow substance of favus is a granular degeneration of the cells of the rete mucosum, and that the yellow colour of the mass most probably results from a purulent transition of the elements of the cells.

DIAGNOSIS.—In its fully-defined form favus is unlike every other cutaneous disease; the yellow cupped disks, with well-defined rounded borders, are pathognomonic; then the detrita resulting from the breaking up of the crusts, and afterwards the destruction of the hair, and resulting permanent cicatrices and bald areas. We can barely conceive the possibility of a neglected and encrusted eczema being mistaken for this disease; but in the hands of the inexperienced such an error might happen. It must be remarked that favus is extremely rare in England, and we have seen it only in the workhouse. In Scotland it is more common; but in our daily practice it has come to us from abroad, from France, Spain, and the north-western coast of Africa. In three thousand cases of cutaneous disease occur-

ring in private practice, we have met with favus only twice; one of the two cases being a native of Africa, the other a young lady aged eleven, who has suffered from the complaint since the age of three; she has resided on the French coast, and has undergone the purgatory of avulsion, almost to the destruction of her intellect, but without benefit to the disease. On the summit of the head is a large oval patch of a dry, cream-coloured substance, resembling dried mud, fissured with cracks, and broken up into small fragments; this substance looks as if it were embedded in the scalp; all trace of the cup-like form is gone, even at the edges, and the concretion has a powerful odour of mice; the hair is gone from the actual seat of the patch, but over the rest of the head is unaffected, excepting in being more harsh and wiry than natural. At one time this patient had a patch of favus on the nose.

CAUSE.—The cause of favus is a debility allied with struma, a debility of nutritive vitality; and the result of this form of debility is shown in the perversion of cell-structure from a horny animal tissue to an inferior grade of tissue, corresponding with that of vegetable life, a degradation of structure from the animal to the vegetable type, or, as we have previously named it, a granular and phytiform degeneration of the epidermal cell-tissue.

But, according to the phytopathologists, with whom we disagree, favus is a parasitic vegetable growth, originating in the seeds of the *achorion*, coming from without, and germinating on the spot where they may chance to fall. In our theory we do not recognize contagion as a means of communicating the disease; with the phytopathologists, contagion is the very essence of their opinions.

PROGNOSIS.—In the countries where favus commonly prevails, the disease is remarkable for its obstinacy; in the climate of England, with good food and proper regimen, it speedily gets well. The injury done to the scalp, when the disease has been long in existence, is, however, irremediable; the cicatrices are permanent, and the hair never returns on the denuded spots.

TREATMENT.—The treatment of favus consists in improving the general health by nutritious diet and tonic regimen; by the use of ordinary tonics for general indications of debility;

chalybeates in the case of anæmia ; the iodide of iron and cod-liver oil where struma is suspected or obvious.

Locally, the first step must be to remove the crust, and secondly, to soothe the local irritability and inflammation of the skin. Saturate the crusts with oil or lard, and cover the part for twenty-four hours with an oiled silk cap, and the crust will be so far softened as to be raised without difficulty from its bed, and if the procedure be managed with adroitness, without lesion of the skin ; if the crust do not separate easily, the inunction and covering may be repeated for another interval of twelve or twenty-four hours. When all the crust is disposed of, the head should be washed with the juniper-tar, or petroleum soap, and, after drying, anointed with a diluted nitric oxide of mercury ointment. The washing should be repeated daily, as also the ointment ; and with moderate care, any further formation of crust may be prevented, and the skin will return to its healthy state. When there is hair on the head, assiduous combing and brushing may be added to the washing and inunction.

KERION is a suppurative inflammation of the hair-follicles of the scalp, which results in the destruction of the hair-pulp and the fall of the hair. It is known by the occurrence of patches of a deep red or purplish colour, more or less tumefied, sometimes nearly flat, and sometimes prominent, and studded with yellow points corresponding with the apertures of the hair-follicles, and containing a yellowish-white pus. The disease begins suddenly, the first indication of its existence being frequently the fall of the hair and the discovery of a bald, or scalled, and inflamed patch ; hence the term *scalled head*. In a few days it is apt to swell up into a tumour of considerable elevation, and extremely tender and painful ; and the tumour gives issue, by numerous openings, to a muco-purulent, viscous, and honey-like* fluid. The description of this disease given by Celsus is remarkable for its accuracy : he compares it to a "furuncle in shape, but larger and more painful. When it matures, it presents a number of foramina, through which exudes a glutinous and purulent humour." Celsus also describes this fluid as a "glutinous

* Hence, doubtless, the term Kérion or honeycomb, the puffed interfollicular spaces representing the framework of the comb. We have also compared the tumour to a large fleshy strawberry, which it sometimes closely resembles.

palish humour, of the consistence of honey, or resembling the juice of the mistletoe, or sometimes oil."

Kērion presents two principal varieties, having reference to its distribution; namely, *kērion confertum* and *kērion dispersum*; the former presenting scutiform patches, commonly of one or two inches in diameter, and often perfectly circular; the latter being small in size, and scattered over the head, comprising in their area only a small cluster of follicles. In other respects both varieties are alike, and pursue the same course. In their exudative stage, the hair around the patches is apt to become agglutinated and matted over the disease, and, with the desiccated secretion, to form a crust of considerable thickness, under which the muco-purulent matter collects in considerable quantity. Inflammatory congestion is at the same time propagated to the adjoining skin; there is pruritus and pain; the lymphatic glands of the scalp become enlarged and tender, and abscesses are produced in their neighbourhood.

The tumour of kērion at this period communicates a hollow sensation to the touch; there is fluid under the skin, and not unfrequently under the fascia also, and possibly under the pericranium; but a puncture leads to no good result; the fluid is not pus, but a viscous and colourless albuminous matter, which is speedily absorbed when the disease puts on a curative action. Celsus alludes to this when he says that the tumour "never matures thoroughly," that it contains "more corrupt matter than a boil, and is also more deeply rooted."

Reviewing the pathognomonic characters of kērion, we shall find them to be, the sudden baldness of the patch, the congested and swollen appearance of the skin, the gaping apertures of the follicles, the pustular spots; these signs forming a kind of first stage of the disease; then the very considerable tumefaction of the skin, the magnified follicles, the puffed borders of the follicles, the copious and peculiar secretion, the tendency to incrustation, the enlargement of lymphatic glands, and the extension of the disease to the deeper tissues of the scalp; lastly, and as a final stage, the more or less permanent baldness of the diseased spot. In a recent case the hair may be reproduced on the bare spots, but in one of a chronic nature the follicles are too seriously disorganized to produce hair ever again: the hair papillæ are obliterated and destroyed.

Kērion is a disease of childhood and youth; we have never seen but one case in the adult, and that was associated with albuminaria. In fourteen cases the ages of the patients ranged from five to thirteen, nine occurring between five years and ten. Its duration at the beginning of treatment ranged between two months and two years, eight cases having been in existence under three months, and two cases over one year. Of the forms of the disease presented in these cases, eight were examples of kērion dispersum, and six of kērion confertum, one being in the suppurating stage.

Kērion must be regarded as belonging to the same group as trichosis and favus, representing, in fact, an inflammatory and pustular form of the same disease. In trichosis the part chiefly attacked is the hair-pulp and hair; in favus and kērion, the hair-follicle; but between the latter there is the marked difference of one being a dry, the other a moist affection; in other respects the latter diseases are so like, as to suggest the idea of kērion being a pustular favus. The phytiform disorganization of trichosis and favus has not as yet been discovered in kērion, but we have no doubt of its presence, and that kērion must be added to the group of diseases of which that peculiar morbid phenomena is the leading character.

Of the fourteen cases of kērion already referred to, trichosis annulata was present as a complication in two, and trichosis tonsurans in one, while a brother of one patient had the former affection, and a sister of another the latter; so that five of the fourteen cases were actually associated either directly or indirectly with trichosis; and in one of the above cases kērion manifested itself on a patch of trichosis tonsurans. Other complications of kērion, occurring each in a single instance, were furuncululus and eczema.

DIAGNOSIS.—The student must guard himself against confounding the scalled patches of kērion with area: in one, inflammation or traces of inflammation are present; the other is a baldness resulting from exhaustion of tissue. From the kindred diseases trichosis and favus, the presence of tumefaction and supuration is the distinguishing character.

CAUSE.—The cause of kērion is nutritive debility, possibly associated with a strumous diathesis. The remote predisposing causes, in the fourteen cases already mentioned, were as follows:

anæmia, rubeola, eczematous diathesis, errors of diet, climate, as illustrated in the transfer of India-born children to England, and the nosophytic diathesis.

PROGNOSIS.—Kērion is slow and chronic in its nature, but yields favourably to the kind of regimen which improves the constitutional powers. When the disease has existed long, the restoration of the hair on the scaled patches must be regarded as hopeless.

TREATMENT.—Kērion calls for a nutritious and appropriate diet and regimen, and tonic remedies, such as nitro-muriatic acid with the tincture of orange-peel, quinine with sulphuric acid, phosphoric acid with a bitter tincture, chalybeates, and, where a strumous diathesis is suspected, cod-liver oil and the syrup of the iodide of iron. As a special cutaneous tonic, the ferro-arsenical mixture is very valuable in this disease when other indications have been fulfilled. Locally, washing with the juniper-tar soap, together with combing and brushing, must be carefully pursued, and dressing with the juniper-tar ointment, or the unguentum picis liquidæ, or the latter in combination with the unguentum sulphuris. Where the inflammation runs high and there is much pain, as also where crusts of considerable thickness and breadth have formed, water-dressing must be adopted for awhile, until the inflammation has subsided and the crusts have been removed. In its inflamed and irritable state a solution of nitrate of silver, ten grains to the ounce, is often very useful, and subsequently the dressing of unguentum picis. To remove any induration that may complicate its last stage, the patch may be painted with the compound tincture of iodine. When a soothing application is indicated, we may have recourse to the benzoated ointment of oxide of zinc; and to subdue the desquamation of the surrounding skin, to the diluted nitric oxide of mercury ointment.

SYCOSIS is an inflammation of the hair-follicles, attacking chiefly the face, but occasionally extending into the borders of the scalp. The inflammation is sometimes marked by redness and desquamation only, and may be termed *erythematous*; sometimes it is *papular* or coniform, sometimes *pustular*, sometimes *tubercular*, and in rare instances, *fungous*. It is to the latter form that the disease owes its name sycosis, from *σῦκος*, a fig, because the fungous development of the disease resembles the pulp of that fruit. The disease is also named, from its situation, sycosis

menti, maxillaris, capillitii, supercilii, etc., and in the more common seat of its occurrence, namely, the roots of the beard, it is distinguished as *mentagra*. It is a disease of the male of adult age, and is very rarely met with in the female.

Sycosis erythematosa is known by a redness, furfuraceous desquamation, and more or less hardness and thickening of the skin. The disease may exist in this state for months without proceeding further, or may accompany or follow the other forms. It is attended with a feeling of heat and pruritus, and sometimes with tingling and smarting, but rarely with any discharge or exudation from the skin. The erythematous form of sycosis is often met with on the eye-brows and temples, while the rest of the face may be attacked by the more decided follicular forms.

Sycosis papulosa vel coniformis proceeds from vascular congestion of the follicles, which assume a conical figure, and give exit to a hair by the summit of the cone; it occurs chiefly on the chin, at the roots of the whiskers, and upon the upper lip, and is associated with the erythematous and commonly with the pustular form of the disease.

Sycosis pustulosa represents the suppuration of the papule or the substitution for the papule of a conical pustule, filled with a whitish-yellow pus, and transfixcd by the hair. The greater or less abundance of the pustules constitutes the chief difference between the papulous and the pustulous variety, and the latter is more or less extensively associated with the erythematous and papulous forms.

Sycosis tuberculosa may be associated with all the three preceding forms, and take the place of a complication of the original disease. Sycosis is always chronic, but the tuberculous character represents a more chronic disposition than any of the rest. The source of the tuberculation is a thickening and infiltration of the skin, sometimes arising from the operation of the erythematous form upon the deeper tissues and afterwards succeeded by the papular and pustular eruption.

Sycosis fungosa or ficiosa is more rare; indeed, is very rare in this country, but may be present as a complication of any or all the preceding forms; and, in a very severe invasion of the disease, all the pathological forms may be present in the same individual.

Sycosis is essentially chronic in its nature, lasting for many

months, often for years, presenting every aggravation of inflammation, giving rise to enlarged lymphatic glands in the neck, sometimes to subcutaneous abscesses, and occasionally to ulceration of the skin and obliteration of the hair papillæ and follicles, so that the part may remain permanently bald and sometimes deeply scarred.

In reference to the situation of sycosis, we have found, in thirty cases, eighteen affected in the chin, six in the upper lip, and four in the maxillary region; while in two instances all these parts were attacked, namely, chin, upper lip, whisker, as well as the eyebrow, and the scalp in the region of the temple. The ages of origin of the disease ranged between eighteen and fifty, one patient being sixty-two; but the age at which the disease is most frequent is that between thirty and forty. The duration of the malady at the beginning of treatment extended from a few months to fifteen years, the greater number of examples being found between two and four years.

Sycosis is a dermatophytic disease, presenting the phytiform kind of degeneration already described in connection with other diseases of the follicles, namely, trichosis and favus. This phytiform tissue was first described by Gruby, in 1842, and was named by him *mentagrophyton*; he regarded it as a parasitic plant, and detected its presence in the hair-follicles, in the substance of the hair, and also in the epidermal cells of the interfollicular portion of the skin. Latterly it has been identified with the trichophyton met with in trichosis.

DIAGNOSIS.—Sycosis may be mistaken for acne, unless its relation to the hair be borne in mind; the thickening and condensation of the skin, the papulation, and the pustulation, are peculiar to this disease. Not so easy is the distinction between a mild form of sycosis and impetigo; in this case we must make ourselves acquainted with the duration of the disease, and its special localization on the hairy parts of the face.

CAUSE.—The cause of sycosis is debility, chiefly referrible to the assimilative system; next in frequency, to local conditions; thirdly, to the nutritive system, and fourthly, to the nervous system. One of the most common of the remote predisposing causes is cold: the disease is apt to begin in the winter season, and cold may act the part both of a predisposing and an exciting cause. Other remote predisposing causes of debility are,

the eczematous diathesis, dyspepsia, struma, syphilis, rheumatic diathesis, errors of hygiene, and organic disease. In one case the patient, a young man of nineteen, received a severe chill during very cold weather; the chill was succeeded by catarrh, afterwards by furuncle, and subsequently by sycosis; while repeated instances were found to be referrible to the chilling effects of draughts of cold air in an otherwise heated atmosphere. The disease is not unfrequently intermittent, making its attack in the winter time, and getting well in the summer.

PROGNOSIS.—Sycosis, as we have seen, is very obstinate, but not dangerous to health, and of late, with an improved method of treatment, has become more manageable than heretofore.

TREATMENT.—The difficulties of treatment of sycosis are proportioned to the difficulty of reaching, with our remedial means, the real seat of the disease, namely, the interior, and often the fundus of the hair-follicle. To effect this object, we must remove the hair by avulsion, and afterwards apply our remedies, the most efficient for this purpose being the bichloride of mercury, either in lotion or in solution in glycerole, the unguentum hydrargyri nitratis, or the unguentum iodidi sulphuris, of the strength of one or two scruples to the ounce.

We must instruct our patient to wash the eruption thoroughly with the juniper-tar soap, and then to pull out, by means of a pair of tweezers, every hair growing on the diseased part; the process is painful and tedious, but it is the only certain means of cure. The hairs should be drawn out singly and by a steady pull; the most diseased spot selected for a beginning, a small space cleared at first, and enlarged at each sitting, until every hair is removed. One of our patients informed us that he had extracted sixteen hundred hairs from his upper lip in three weeks. The hairs surrounded by a pustule at their base come out the most easily; but fomentation with warm water and washing with the juniper-tar soap diminish the pain of the operation very considerably, and facilitate its accomplishment. After the operation is over for the day, a smear of acetate of lead ointment (gr. v. ad ʒj) adds very much to the comfort of the skin. By insisting on this plan the most obstinate sycosis may be brought into a curable state, and often may be cured in the course of a few weeks.

Where any constitutional disorder is present, that must be

corrected by the usual means: by aperients, to regulate the secretions; by tonics, to remove debility; and by appropriate dietetic and hygienic means. Arsenic, and the triple solution of mercury, iodine, and arsenic, so useful in many chronic affections of the skin, are impotent in sycosis without the assistance of local treatment.

CHAPTER XXII.

AFFECTIONS OF THE SEBIPAROUS SYSTEM.

THE SEBIPAROUS SYSTEM is a part of the general follicular system of the skin, sharing with the hair-system and the sudoriparous system the follicular apparatus of the entire cutaneous surface. The follicles of the hair-system are provided with sebiparous follicles or glands; but in treating of the diseases of the hairs, we disregard the latter as performing only a secondary office; so, in considering the diseases of the sebiparous system, we do not overlook the connection of the small hairs of the body with the sebaceous apparatus, although we give our attention especially to the latter. In structure, the sebiparous and the hair system have one part in common, namely, the outlet of the follicle, and this is important to be borne in mind.

The diseases of the sebiparous system admit of a primary division, into diseases of structure, and diseases of function. The diseases of structure heretofore observed affect chiefly the epidermal lining of the aperture of the follicle and the epithelial lining of the tubuli of the gland, and are three in number; namely,—

Epidermic hypertrophy,
Epithelial hypertrophy,
Canceroid hypertrophy.

EPIDERMIC HYPERTROPHY is an enlargement of the conical epidermic plug which occupies the mouth of the follicle, an hypertrophy belonging to the corneous tissue of the epidermis. We have seen this disease only a few times, but once in a well-marked degree, when it appeared as a crop of transparent horny papulæ dispersed over the forearms. The papulæ were larger than those of lichen, and, regarding the disease as a papular hypertrophy of the epidermis of the cutaneous follicle, we termed it *papulæ epidermica*. Our treatment of this case was daily ablation with the juniper-tar soap and active friction.

EPITHELIAL HYPERTROPHY affects the deeper-seated lining

of the common follicle as well as that of the sebiparous gland, and is apt to spread to the rete mucosum of the interfollicular integument. The morbid tissue is yellow in colour, and deserves the appellation of *yellow hypertrophy of the epithelium*, the tint of yellow varying from a pale cream to a bright golden tint. It presents two principal varieties, *papular* and *laminated*, the former being limited to the apertures of the follicles, the latter spreading from one follicle to another, and producing a plate of considerable extent, sometimes smooth and sometimes granulated. The papular variety which we have termed *papulae flavae epithelii cutis*, occurs in the form of papules of considerable size, and may be met with dispersed over any part of the body. The laminated variety, *laminae flavae epithelii cutis*, is commonly seen in the integument of the eyelids, and more particularly of the female sex. Dr. Gull has named this latter affection *vitiligoidea*, and he designates the varieties as *vitiligoidea granulosa* and *vitiligoidea plana*. Regarding these formations as a degeneration of structure, dependent on debility and lowered vitality of tissue, the treatment we have to recommend is stimulant and alterative; in the papular form, dispersed upon the limbs, saponaceous ablutions with the juniper-tar soap, followed by friction with the unguentum sulphuris; and in the case of the concentrated form met with on the eyelids, the cautious application of a solution of *potassa fusa*. In the latter case we have used the compound tincture of iodine and acetum cantharidis without any good result.

CANCROID HYPERTROPHY, or epithelial cancer, is apt to show itself at the apertures of the follicles, where it assumes the form of a small tubercle, with lobulated and semi-transparent borders and depressed centre. We have transferred the consideration of this form of degeneration of the epithelial tissues to our chapter on carcinomatous affections of the skin, to which, from the nature of its subsequent history, it more especially belongs.

THE DISEASES OF FUNCTION, or diseases of secretion of the sebiparous follicles, present two principal heads, having reference to the *excretion* or *detention* of the sebaceous substance. The excreted sebaceous matter may be in *excess*, or it may be *deficient* in quantity, and it may be *altered* in its qualities. When simply detained in the follicles, the aperture of the follicle may remain *open*, or it may be *closed*, and the contained matter may be more

or less altered from its normal condition. Lastly, with altered and commonly torpid secretion, we may have inflammation of the immediately surrounding tissues.

THE DISEASES OF EXCRETION are steorrhœa, or excess of secretion; asteotodes, or absence of secretion; and allostetodes, or alteration of secretion.

STEARRHŒA, or seborrhœa, commonly presents itself as a greasy condition of the skin (*cutis unctuosâ*), and is usually met with on the face; there is also associated with this state of secretion a certain degree of vascular congestion and general coarseness of structure of the skin; the apertures of the follicles are enlarged, and the interfollicular integument puffed up like the rind of an orange.

ASTEOTODES indicates a deficiency or absence of the natural sebaceous secretion, and the skin as a consequence is dry, dirty-looking, and roughened by desquamation. This condition of the secreting function is sometimes met with in elderly persons or those who have been exposed to extremes of climate or vicissitudes of weather, as in sea voyages. When a certain portion of sebaceous substance is excreted by the follicles, it is apt to congregate upon the skin, and form dry, dirty, closely-adherent laminæ, and excite some irritation of the surrounding skin; and if these laminated concretions be removed, the cuticle is apt to be torn and the skin to bleed; and if neglected, the excoriations may degenerate into an unhealthy secreting surface. An accumulation of these laminæ, with specks of concretion on the face, has been termed ichthyosis, or more properly sauriderma, sebaceum. They are commonly associated with a general sordid condition of the skin.

ALLOSTEOTODES, or alteration of sebaceous secretion, is commonly marked by alteration of colour and density of the secretion. In one case it may be yellow and abundant in quantity, *steorrhœa flavescens*; in another also abundant, but charged with pigment, and almost black, *steorrhœa nigricans*; while in a third the pigment may present a bluish or a greenish tint, the former of these states constituting *steorrhœa cœrulea*. Alteration of density we have already considered in those laminated and squamous concretions on the epidermis, which have been named sebaceous or false ichthyosis or sauriderma.

STEARRHŒA FLAVESCENS may be developed on the face or on

the scalp; on the former it is mostly seen upon the nose and neighbouring part of the cheek. The secretion is sometimes so soft as to be easily removed with a napkin, but it is apt to form again in the course of a few hours. It is of a variable tint of yellow, sometimes as bright as gold, and on the scalp is apt to concrete into a layer of considerable thickness, producing much pruritus, and sometimes, by the extension of the irritation into the follicles, contributing to the fall of the hair.

STEARRHŒA NIGRICANS is a remarkable form of *allostetodes*, and consists in an excess of sebaceous secretion of a diffuent character, and more or less abundantly charged with pigment granules. It would seem to be of nervous origin like other forms of *melasma*, occurs for the most part in young women, and is commonly associated with hysteric affection. Occasionally it has been observed to be produced under the influence of mental emotion, and is sometimes periodic, making its appearance from time to time, and even occurring at a particular hour of the day. Not unfrequently these cases have been accompanied with vomiting, and the appearance of black matter in the fluids raised from the stomach, and also in the *fecal* discharges and in the urine. Most of the recorded cases of this disease, and those that have fallen under our notice, have occurred upon the face, and particularly the eyelids, and have been associated with that very peculiar affection of the eyeball and of the eyelids, first described by ourselves under the name of *melasma oculi*.

An instance of this remarkable affection was published in the "Philosophical Transactions," by Mr. Yonge, upwards of one hundred years ago, and is so illustrative of the nature of the complaint, that we have ventured to quote it here. "A girl sixteen years old, a daughter of Mrs. Elizabeth Worth, of Plymouth, about the end of April, 1709, had a few hot pimples rise on her cheeks, which bleeding and a purge or two cured. She continued very well till about a month afterwards, when her face, so far as is usually covered with a vizard mask, suddenly turned black, like that of a negro. This surprising accident much frightened her, especially after some foolish people persuaded her she was bewitched, and never to be cured. By prayers, exorcisms, &c., which they used in order to relieve the fascination, they increased the passion and terror of mind to a great degree, even to distraction, and then desired my assistance. By

the arguments which I used, and some composing anti-hysterical remedies, the violence of her fits became much pacified. I directed a lotion for her face, which took off the discoloration, yet it returned frequently, but with no regularity, sometimes twice or thrice in twenty-four hours, sometimes five or six times. It appears insensibly, without pain, sickness, or any symptoms of its approach, except a little warm flushing just before it appears. It easily comes away, and leaves the skin clear and white, but smuts the cloth that wipes it from the face; it feels unctuous, and seems like grease and soot or blacking mixed. It has no taste at all. She never had the menses; is thin but healthful; the blackness appears nowhere but in the prominent part of her face. There are a thousand eye-witnesses to the truth of this uncommon case. The anomalous blackness of the girl's face is now (November) divided into a few dark cloudy specks, which appear but seldom, and nothing so livid as formerly."

STEARRHŒA CÆRULEA is a rarer disease than the preceding forms of morbid alteration of colour of the sebaceous secretion, and is due to a blue tinge of the normal pigment of the skin. In other respects it corresponds in every way with *stearrhœa nigricans*, and, like the latter, must be regarded as a neurosis.

TREATMENT.—All the forms of aberration of sebaceous secretion poured out upon the skin, or deficient in quantity, may be regarded as depending upon want of tone or vitality of the glandular apparatus, combined with more or less irritability of tissue of the skin. Hence the treatment should, in principle, be alike in all: stimulation, by means of saponaceous ablutions, and especially with the juniper-tar soap, and the subsequent use of stimulating unguents or lotions.

In the different forms of *stearrhœa* the skin should be well washed with soap and afterwards bathed with a weak solution of the bichloride of mercury, of the strength of one grain to the ounce. In *stearrhœa* of the scalp, united as it generally is with concretion and desiccation of the sebaceous matter, the saponaceous ablutions should be followed by an ointment of the nitric oxide of mercury, diluted in the proportion of one part to three, and with abundant brushing and combing.

The *asteotodic* forms may be similarly treated, the saponaceous ablutions being followed by the diluted nitric oxide of mercury

ointment or by glycerole,* either simple or containing the bichloride of mercury in the proportion of four to six grains to the ounce.

Stearrhœa nigricans is a disease of deeper-seated origin than the skin, depending, like other forms of melasma, upon derangement of the nervous system, and morbid sympathy with the great abdominal ganglia and plexuses of the organic system of nerves. It therefore, as well as stearrhœa cœrulea, demands a constitutional as well as local treatment, a treatment conformable to the suspected cause of the disturbance, such as hysteria or deranged menstruation, or a treatment founded on the expectant principle. We refer the student for a further elucidation of this subject to the chapter devoted to chromatogenous affections.

THE DISEASES OF DETENTION of the sebaceous substance are due either to deficiency of expulsive power in the follicles and ducts of the sebiparous glands; or to condensation of the secretion, which renders the expulsive power nugatory; or to the absence of excretory opening to the follicle. The diseases belonging to this group are as follows:—

Comedones,
Tumores sebipari,
Tumores encystici,
Tubercula sebipara.

COMEDONES are the accumulations of sebaceous matter so commonly met with in the follicles of the face of persons whose skin is naturally languid and torpid in action and function. The accumulation appears at the surface of the skin as a black point or spot occupying the aperture of a follicle, and if the skin be squeezed, the accumulated material may be pressed out of the follicular tube, when it will be found to be cylindrical in shape, of a white colour, excepting at the extremity which had been exposed to the atmosphere, and very much resembling in shape a *grub* or maggot, with a black head. These accumulations are not confined to the face, but are met with on every part of the skin supplied with follicles, being most abundant where the follicles are richest in sebaceous substance. Hence they are common

* Glycerole is made by dissolving one drachm of starch in an ounce of glycerine, with a moderate heat; the resulting compound is a transparent jelly, less diffuent than glycerine, and very convenient of application to surfaces requiring a moistening medium.

in the coarse skin of the back, and in the sternal hollow of the front of the chest, and are commonly associated with acne, to which they often stand in the relation of cause.

It must be remembered that the excreted matter of the follicles of the skin is composed of four principal elements, namely, water, oil, albumen, and horn; in the sebum, or sebaceous substance, the water, oil, and albumen, form a kind of emulsion inspissated with the denser material of the cells, while in the upper part of the common follicle of the sebiparous gland and hair, the cells have undergone a horny transformation. Now the *plus* or the *minus* of these four elements will necessarily alter the secretion very materially, and also alter its destiny. If it be moist it will flow freely, possibly in excess, as in steorrhœa; if, on the other hand, it be dry, it will be retained in the follicle, and if long retained, the oily and aqueous portion may become absorbed and only the denser albuminous and the horny matter remain.

When the excreted substance of the follicles has been long held in detention, another element will be found in its composition, namely, minute hairs. In a mass of this substance, of no great bulk, we have counted as many as ten or twenty hairs, which have grown to their full length and have been cast in succession, to give place to a further growth. And when the follicular matter is abundant and rich in oil and albumen, we may discover another object in the midst of its mass, a living animalcule, the *steatozoon folliculorum*. As many as ten or twelve of these creatures are sometimes met with, feeding on the contents of the follicle, and they may be seen in every stage of development, ova, spade-shaped embryos, and perfect animals. Their habitat is the upper part of the follicle, and their heads are directed inwards, as though they had made their way from without. These follicular entozoa give rise to no irritation of the follicle, nor are they the cause of disease; on the contrary, they aid the restoration of the skin to health by disintegrating the accumulated mass, and thus facilitating its expulsion.

In certain cases of comedo the albuminous and the horny element of the follicular substance are in excess, and the little cylinder already described dries up into a hard and tough spine. We have seen a cluster of these spinous comedones, amounting to twenty or thirty in number, and having the appearance of bristles growing out of the skin.

TREATMENT.—Retention of secretion in all its forms, where there exists no organic impediment to the issue of the accumulated substance, will be benefited, and in most instances cured, by the wholesome use of soap, friction, and cold water. An honest ablution is food, air, and exercise to the skin, and a necessity of its healthful condition. Where comedo is firmly established we may aid the operation of ablution by stimulating pomades, such as the compound hypochloride of sulphur ointment. But we must caution the student against bringing together sulphur and mercury, or mercury and lead; otherwise he will very much increase the apparent evil, the accumulation of black spots.

TUMORES SEBIPARI.—The accumulation of sebaceous matter is sometimes confined exclusively to the ducts of the sebiparous gland; they are distended throughout, from their primary to their ultimate branches, and the gland is forced upwards above the level of the skin, in the form of a small currant-shaped tumour. The little tumour resembles a currant in size as well as in form, is globular in shape, indented on the summit at the point where the dried sebaceous substance appears in the aperture of the distended excretory duct, lobulated on the sides in conformity with the arrangement of the lobules of the gland, semi-transparent from distension of the super-imposed stratum of the corium, and slightly constricted at the base.

These little sebiparous tumours are commonly called *molluscum*, with the adjectives *simplex*, *venile*, *antiglobuleum*, *parvum*, *pisiforme*, and *contagiosum*, and have given rise to some controversy as to their supposed contagious qualities. Like *impetigo phlyctenoides* and *trichemia*, they are apt to attack a whole family of children, and sometimes the adults of the same family. We hold to the non-contagious side of the question, and believe in their endemic and epidemic nature, rather than the capability of their communication by contact. They are extremely met with in children and families of a sterona diathesis, and are usually seen distributed on the face and neck, and especially in the neighbourhood of the eyelids.

In some instances they seem to be produced by the stimulus of friction acting on a dry and rough skin, and in this case may be developed on the trunk of the body. A gentleman lately presented himself for our counsel, upon whom these and abscesses

there were forty or fifty of these small tumours, dependent for their exciting cause on the friction accompanying the process of shampooing.

TREATMENT.—Our observations on the importance of ablution with a mildly stimulating soap, such as that of the juniper-tar, must not be overlooked in sebiparous molluscum. The little tumours may be destroyed by the cautious application of a solution of potassa fusa (partes æquales), but the saponaceous ablution will tend to the restoration of the healthy tone of the skin. Where the tumours are dispersed and numerous, and especially when they are distributed over the trunk of the body, a lotion of the bichloride of mercury in almond emulsion will be found particularly useful. When the general health is faulty we must have recourse to a nutritious diet and regimen, with bitter and chalybeate tonics; and in case of a suspected strumous diathesis, to the syrup of the iodide of iron and cod-liver oil.

TUMORES ENCYSTICI.—With accumulation of sebaceous substance there exists not unfrequently a hypertrophic action in the coats of the follicle; the containing and the contained participate in a mutual growth, and the growth may be said to be almost unlimited. The gland is obliterated in the early stage of the disease by the pressure of the accumulated mass, and the secretion which follows must be regarded as the product of the dilated follicle, now converted into a sac or cyst, rather than of the gland itself.

These encysted tumours are divisible into two groups, one in which the aperture of the follicle remains *open*, and which is a mere magnified comedo, and another, the true encysted tumour, which is a *closed* sac. The encysted tumour with open aperture enlarges horizontally more than vertically, and forms an oval-shaped and flattened mass, that is more perceptible to the touch than to the eye, while through its aperture, which is sometimes almost closed and sometimes considerably dilated, its impacted contents may be reached by means of a probe. The contents of this form of tumour are condensed and solid, forming a mass that is laminated in texture, and made up of epidermic scales, which are glistening in appearance and horny in texture, and the product of the internal surface of the cyst. These tumours are commonly met with in the thick skin of the trunk of the body,

and especially on the shoulders, and they vary in dimensions from half an inch to two inches in diameter.

In the compact form of the included mass the pressure of the cyst is uniform in all directions, and as the accumulation bears so large a proportion in size to the outlet of the sac, there is no tendency to its expulsion, but occasionally the accumulated matter becomes softened, possibly in consequence of inflammation of the cyst, and then a portion of the contents may be forced through the opening. In contact with the air the exposed matter dries into a hard mass, and by successive extrusions the hardened mass is lengthened, until it assumes the form and characters of a horn. It is hard, semi-transparent, laminated, and in composition as well as in appearance is horny in its nature.

We have already shown that comedones may be converted into horny bristles projecting from the follicles of the skin, and we are now describing the manner in which horny bodies of larger growth, the so-called *cornua humana*, are produced. We shall have occasion to recur to the subject again.

TRUE ENCYSTED TUMOURS, or tumours with a *closed* cyst, are, with the exception just named, identical in structure with the preceding. They occur most frequently in the scalp, but are met with also on the trunk of the body. They are globular in form, prominent, resembling marbles under the skin; hard at first, but at a later period, when their contents are broken up, soft and tense. They vary in size, from that of a pea to a marble, and sometimes acquire the dimensions of a small orange. Not unfrequently there are two or three, and occasionally as many as ten or twenty on the head; and the tendency to their formation would appear to be sometimes hereditary. When they have been a long time in existence they cause, by their pressure, the obliteration of the hair-follicles, and the skin covering them becomes bald.

In their early stage encysted tumours are hard, from the compact nature of their contents; but when they have grown to a considerable size, or when the cyst has been inflamed, their contents are apt to become softened and altered in quality, sometimes quite fluid, and often foetid. Hence, according to the nature of their contents, they have received the name of *atheroma* when filled with a substance like pap or bread sauce; *meliceris*, when the contents resemble a semi-fluid wax, and *steatoma* when the

fatty element of the sebaceous substance predominates. Occasionally they are filled with an albuminous fluid containing crystals of stearine, and sometimes, amidst their softened contents, are found a considerable number of hairs.

The outer layer of the accumulation of the encysted tumours forms a boundary to the mass, and at the same time takes the place of an epithelium to the cyst; it is commonly dense and horny in its texture, while the cyst is remarkable for its tenuity. The operation for the removal of the tumour turns upon this point of structure; the cyst should be punctured; the horny epithelium should be seized with the forceps, and held firm, while the thin cellular tissue which holds the cyst in its place should be pressed back until the horny layer with the attenuated cyst is liberated from its attachment, and comes out as an unbroken shell, representing the precise form of the cyst, and enclosing the morbid matter of the tumour.

We have shown, in preceding paragraphs, that the substance of the comedo and the accumulations of the open encysted tumour are in part horny in their nature, and that when exposed to the atmosphere they dry up into a hard mass, scarcely distinguishable from horn, and so give rise to the so-called *cornua humana*. We must now apply the same reasoning to the true encysted tumours. The cysts of these tumours and the skin covering them are apt to become inflamed; the latter ulcerates, and the follicular substance is exposed; it dries up into a horny mass, and fresh portions are from time to time extruded, as they accumulate by fresh secretion at the base, until we have produced those extraordinary growths that resemble a ram's horn in shape, and are several inches in length.

TREATMENT.—The treatment of encysted tumours is simply local, and consists in the removal of the contents of the cysts and the destruction of the thin membrane which constitutes the cyst, and which is incorporated with its epithelial layer. In the case of encysted tumour with open mouth the latter may be dilated or enlarged by incision, the accumulation may be removed, and the surface of the cyst pencilled with a solution of *potassa fusa* (*partes æquales*) or rubbed with the solid nitrate of silver. The encysted tumour without aperture, or true encysted tumour, requires to be incised to an extent corresponding with the breadth of the tumour. The incision brings into view the contents of

the cyst, and with them the firm, horny, capsule-like outer layer which is adherent to the surface of the cyst. This horny layer should be seized and held firmly with the forceps, and the vascular tissues pressed back with the handle of the scalpel, until the shell is drawn out entire and unbroken. The tearing away of the horny layer is a sufficient stimulant of the cyst, and no other treatment is required; the blood that fills up the vacuity after the mass is withdrawn should be left to coagulate and cement the edges of the incision, and serve the purpose of an adhesive bond.

Horny growths are to be softened with water-dressing or poultice, and then removed; painting the surface of the cyst with the strong potash solution, or rubbing it with nitrate of silver.

SEBACEOUS TUBERCLES.—There is another form of enlargement connected with the secretion of the sebiparous follicle which is not an affection of the gland like the sebiparous tumour, but a mere accumulation of the cellular element of the sebaceous secretion in the upper stratum of the corium, and possibly one of the ramifications of the gland, but without any opening communicating with the exterior. It is not unlikely that in its origin it may be an aborted follicle. The accumulation is small in quantity, pearl-like in whiteness, hence its synonym *pearly tubercle*, round in its figure, prominent, and of about the size of a millet-seed; hence the terms *grutum* and *miliun* assigned to it by Plenck, and *miliary tubercles* by ourselves.

The sebaceous miliary tubercle is commonly met with in clusters on the face of young persons, and most frequently upon the eyelids. We have sometimes seen instances in which the face was disfigured by the small tubercles, sprinkled by hundreds through the skin.

Occasionally examples occur in which calcareous matter, phosphate and carbonate of lime, are deposited in the epithelial cells composing this accumulation, and the tubercles become entitled to the denomination of *calcareous miliary tubercles*.

Other forms of follicular tubercle are occasionally met with on the edges of the eyelids, of which the contents are a serous fluid, forming a *serous cyst*, which, depending from the upper eyelid, may become an obstacle to vision. Sometimes they are as small as the millet-seed, and sometimes enlarge to the size of a grape.

Another of these serous sacs is remarkable for the transparency and extreme toughness of its cyst, and, from some fancied resemblance, has been termed *grando*, or hailstone, and also CHALAZION.

TREATMENT.—In sebaceous tubercles the principle of treatment is to induce healthy action in the skin by moderate local stimulants, such as the juniper-tar soap and the bichloride of mercury lotion in emulsion of bitter almonds, and to release the accumulations in the cysts by puncture. The pearly tubercles on the face may be punctured, and the contents squeezed out; so also may the calcareous and the serous cysts; and where they have attained a size of any importance, the cavity of the cyst may be touched with a point of nitrate of silver.

ACNE.

DETENTION OF SEBACEOUS SECRETION within the follicle, occurring in the languid and torpid skin of young persons, is apt to act as an irritant, and give rise to congestion and inflammation of the skin immediately surrounding it; this is the disease which is termed *acne*, probably from the word *acme*, signifying the height of the disorder, and also *varus*, from the deformity which it commonly occasions.

ACNE has received several specific names having reference to its ordinary periods. In its earliest stage, when only a slight elevation without redness, but hard to the touch and dotted in the centre with the black point of a comedo, it is termed *acne punctata*; when the progress of congestion and inflammation has raised the slight prominence into a well-marked conical pimple of a red colour, the term *acne coniformis* becomes applicable; in a third stage the summit of the cone is converted into a well-marked pustule, *acne pustulosa*; in a fourth, pustulation is imperfect, and the skin becomes tuberculated by thickening and infiltration of its tissue; this is *acne tuberculata*; while in a fifth, the skin is indurated and deeply scarred, *acne indurata*. Sometimes the whole of these forms are present in the same person, but more frequently the punctated, the coniform, and the pustular form are united, while the tubercular and the indurated form constitute a chronic stage of the disease. In the two latter the skin

becomes purple, and often livid, and the disease is accompanied with small cutaneous abscesses.

The relative frequency of the four principal forms of acne, as shown in the analysis of one hundred cases, gives, for acne coniformis, the number sixty-five; twenty-five for acne punctata; six for acne tuberculata, and four for acne pustulosa. Of these one hundred cases, sixty were females and forty males, showing a greater prevalence of the disease in the former than in the latter sex.

The situations in which acne is met with are, the face, and particularly the forehead and cheeks; the back, from the shoulders to the hips, and the front of the chest, especially the sternal groove. In the one hundred cases already mentioned, the eruption was developed on the face chiefly in seventy-eight; on the back and face in fifteen, and on the chest in seven.

The ages of the patients ranged between ten years and thirty, the latter age being exceeded in three instances only. Between ten and fifteen the number was twenty-eight, more than a quarter of the whole; between fifteen and twenty it was forty-eight, or very nearly one half of the whole; while the remaining twenty-one, somewhat less than a quarter, fell between twenty and thirty years of age. The chronic and slow nature of the disease is shown by the duration, estimated at the time of application for treatment. In this particular, the disease had lasted between one year and five years in more than one-half, namely, fifty-eight; while in twenty-three, nearly one quarter, it had endured between five years and ten. Nine of the cases had been in existence between ten years and fifteen, while two exceeded the latter period.

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DIAGNOSIS.—Acne is a disease of the follicles, a disease of inflammation, accompanied with accumulation of sebaceous substance, a disease of youth, and a disease of chronic duration. In these respects it is distinct from every other form of eruption, and not to be confounded with gutta rosacea, called in error acne rosacea, which is a disease of mature life, chiefly confined to women; and although attacking the follicles of the face, not dependent on accumulation of sebaceous secretion.

CAUSE.—Acne is essentially a disease of debility, and especially of nutritive debility. In one hundred cases we found only two that we could designate as dependent on assimilative

debility, and one only on nervous debility. The remote predisposing causes occurring in these one hundred cases were as follows: rapid and over-growth, twenty-five; congenital weakness, twelve; anæmia, eleven; deficient and improper diet, seven; errors of air, exercise, and general hygiene, six; and under five each, the following: nervous debility, mental application and study, scarlatina, fever, deranged menstruation, eczematous diathesis, rubeola, dyspepsia, rheumatism, chill, syphilis, variola, vaccination, strumous diathesis, hæmorrhage, abscess, depressing climate, and climate of India.

PROGNOSIS.—Although chronic, acne is perfectly curable; the tendency of age is to induce spontaneous cure, but cure may be greatly facilitated by medical means, as may be inferred from the examination of the long list of depressing influences involved in the remote predisposing causes.

TREATMENT.—The treatment of acne is indicated by the nature of its predisposing causes, both proximate and remote. The diet of the patient must be nutritious and generous; the regimen, in reference to air, exercise, and amusement, must be equally liberal, and we must aid the weakened energies of the vital powers by suitable tonics; in one series of cases by bitters and mineral acids, and in another by chalybeates. But when the functions of digestion and secretion are properly performed, and the indication is special and not general, and betokens debility of nutritive power rather than faulty assimilation, we may have recourse to the ferro-arsenical mixture, in doses containing two or three minims of Fowler's solution, three times a day.

The local treatment must have for its object to restore power to the weakened tissue, and renovate a languid and torpid condition of the skin. The best remedy for this purpose is the compound hypochloride of sulphur ointment, which should be rubbed into the eruption at bedtime, and washed off in the morning with soap and cold water. Another valuable remedy applicable to acne is the bichloride of mercury in solution in spirits of wine, or in an emulsion of bitter almonds, in the proportion of one or two grains to the ounce. This solution may be dabbed on the eruption night and morning, after ablution with soap and moderate friction with a towel.

CHAPTER XXIII.

AFFECTIONS OF THE SUDORIPAROUS SYSTEM.

THE SUDORIPAROUS SYSTEM represents the aqueous element of the follicular secretion of the skin, as does the hair system the corneous element, and the sebiparous system the oily element. The disorders of the sudoriparous system are manifested by derangement of its peculiar secretion: the secretion may be *augmented* beyond the normal bound, it may be *diminished*, or it may be *altered* in its physical and chemical qualities; and the disorders resulting from these aberrations may be enumerated as follows:

Idrosis,	Chromidrosis,
Anidrosis,	Hæmidrosis.
Osmidrosis,	

IDROSIS, also termed epidrosis, hyperidrosis, and sudatoria, is an augmentation in quantity of the perspiratory secretion, accompanied with some degree of vascular congestion of the skin, by a sense of heat, tingling, or itching, and sometimes by pricking and lancinating pains. When of accidental origin and slight in its nature, it is termed idrosis, or sudatoria simplex; but when it prevails as an epidemic or contagious disorder, as did the sweating sickness of the sixteenth century, it is distinguished as idrosis vel sudatoria maligna.

IDROSIS SIMPLEX is apt to prevail in the summer time or as a clinical affection excited by the heat of bed-coverings and heat of apartment in the winter as well as in the summer season. The perspiration is most abundant on those parts of the body which are rich in follicular glands, for example, the head and face, the armpits, the perineum and groins, the palms and soles, and certain regions of the trunk; and on the more sensitive skin of the sides of the body, the inner side of the arms and thighs, and the front of the abdomen and chest, is apt to be accompanied with an eruption of miliary vesicles, or sudamina, constituting the form of idrosis known as *sudatoria miliaris*.

The fits of perspiration are sometimes preceded by a feeling of chilliness of surface and sometimes by a flush of heat, the coldness succeeding the flow of the secretion; and are repeated once or twice in the twenty-four hours, sometimes oftener, and chiefly in the night-season. They are frequently accompanied with a sensation of faintness and sinking at the epigastrium, sometimes with nausea and derangement of the digestive functions, and sometimes with feverishness.

When idrosis occurs as an acute affection it terminates in one or two weeks, or, if it be associated with any form of illness which tends to maintain an unnaturally heated state of the skin, it may continue for a longer period. It has been known to exist for years, and in the latter form, *ephidrosis chronica* is unaccompanied with miliary vesicles.

Idrosis simplex is met with more frequently as a partial affection, *ephidrosis partialis*, confined to some one region of the body, as the hands and feet, the axillæ, or perineum. Sometimes active perspiration prevails on one side of the body and not on the other; for example, on one side of the face or chest. We have recorded the case of a celebrated actor who perspired freely on one side of the face and on the opposite side of the body, and nowhere else.

As idrosis represents a morbid excess of perspiration, it may be anticipated that other qualities of the secreted fluid are altered in their nature: these excessive perspirations have commonly an acid and offensive odour, and are extremely annoying to the sufferers.

Chronic idrosis is most frequent in the hands and feet. In a young lady of nervous temperament we have seen the hollow of the palm fill with secretion and drip between the fingers while we have been speaking to her. And sometimes the disease is hereditary, as in a gentleman whose mother is similarly affected; it began in his case at the age of nine, and has lasted fifteen years; he has two brothers and two sisters; the brothers are similarly troubled, but the sisters have escaped. The secretion is constant in this case, and the cuticle of the palms and palmar surface of the fingers is thick and sodden. In another gentleman the hands have a bright red tint, as though they were stained, and the perspiratory ducts and glands may be seen through the cuticle as vascular points. In the first-men-

tioned case the palms of the hands only are affected; in the second, the palms and the soles; while in a third the soles alone are the seat of the disorder. The latter gentleman is twenty-one; the disease has existed for two years, and is worst in the summer time. The soles are burning hot and red, and so tender as to make walking extremely painful.

IDROSIS MALIGNA.—A form of fever accompanied with profuse and continued perspirations, is described by several French physicians as having been met with in France of late years, and in one instance at the conclusion of an epidemic of typhus. It is accompanied with intense exhaustion and prostration, and with severe congestion of some part of the mucous membrane or of the nervous centres; it is infectious and contagious, and sometimes fatal in the course of twenty-four or forty-eight hours; at other times the fever and the profuse sweatings are prolonged for several weeks.

TREATMENT.—Idrosis must be regarded as a disease of debility, especially of nervous debility, and treated upon those general principles that are applicable to a similar state, irrespective of the local affection; for example, nutritious and generous diet, and tonic remedies, particularly sulphuric acid in combination with quinine or cinchona, or the citrate of iron and quinine. In chronic cases we have had recourse to the ferro-arsenical mixture with much advantage.

Locally, the skin should be washed with the juniper-tar soap, and sponged from time to time with a lotion containing one part of liquor ammoniæ to three of water. In idrosis of the hands and feet an ointment of equal parts of unguentum picis liquidæ and unguentum sulphuris is of much service, with constant ablutions with the juniper-tar soap. The use of a strong solution of sulphate of alumina and chloride of sodium has been found useful in some instances, as also have a solution of tannic acid and a solution of acetate of alumina. We have also applied, with considerable benefit, a liquid paste of precipitated chalk.

Dr. Druitt has lately drawn attention to the fact that a part of the body bathed or sponged with water, as hot as it can be borne, say for sponging 130°, and so treated until the skin tingles with the heat, will remain for some hours afterwards hot, dry, and unperspiring. And he suggests this application in cases of excessive perspiration, whether induced by the heat of

the weather or by pathological causes, as in partial perspirations, or resulting from organic disease, as in the night sweats of phthisis. Cold bathing, he observes, is followed by warmth and a speedy return of the perspiration; tepid sponging is succeeded by a sense of clamminess and chill, and warm spongings increase the perspiration. To produce the desired effect the water must be hot, almost to scalding.

ANIDROSIS, or simple deficiency of perspiratory secretion, may depend on torpor, or defective nutrition or innervation of the sudoriparous glands, and the glands may, after a time, dwindle into a state of atrophy. Sometimes it is congenital from defective development of the glandular organs. The remedy for this evil is moderate stimulation of the skin, by frictions, by the use of the juniper-tar soap, by the habitual use of the cold affusion bath on first rising in the morning, and by daily muscular exercise. The disorder is not simply an inconvenience, but it destroys the balance of excretion, and more labour is thrown upon the mucous membrane and the kidneys than they are competent to bear. We cannot always expect the happy results which are figured in the "Philosophical Transactions," of a certain "gentleman near Leyden, who, being much addicted to the study of astronomy, and spending very many nights in stargazing, had, by the nocturnal wet and cold temper of the air, in such manner obstructed the pores of the skin, that little or nothing exhaled from his body, which appeared hence, because that the shirt he had worn five or six weeks was then as white as if he had worn the same but one day."

OSMIDROSIS, the ephidrosis olens of Mason Good, indicates an altered chemical condition of the perspiration, and is sometimes a serious affliction to those who suffer from its effects, as it spares neither sex nor rank; and we have seen it developed in young women of much beauty and otherwise of considerable attractions. The more prominent of the offensive odours are, acid, ammoniacal, sulphurous, garlicky, and musky. The acid smell is generated by acetic, lactic, or butyric acid, in the latter case communicating an odour of rancid butter, and sometimes of rotten straw. The sulphurous, the ammoniacal, and the garlicky odours are equally disagreeable, and not less so a dry perfume of faded musk. These annoyances are sometimes so great, that an entire apartment may be made impure by a single individual;

and their existence has been made a disqualification for the public service; hence persons wishing to escape admission into the army or navy have simulated this disorder by rubbing their armpits with the animal oil of dippel, with asafoetida, decayed cheese, putrid fish, etc.

Assuming that this annoying affection arises from some error of secretion, induced by lowered vitality of the system or deranged organic functions, the aim of treatment should be to restore strength and health by every available means. When no other indication presents itself, the ferro-arsenical mixture may be of service, by invigorating the nutrition of the skin. We have administered the bisulphide of soda with the view of setting up a catalytic action, and we have thought with good results. The local treatment applicable to this disorder is frequent ablution with the juniper-tar soap, and inunctions with creasote ointment, together with neutralizing remedies, such as a solution of chlorine or of the permanganate of potash.

CHROMIDROSIS, or coloured sweat, the ephidrosis discolor of Mason Good, originates, like osmidrosis, in some chemical alteration of the perspiratory fluid, or in the development in the system of some colouring principle which is eliminated by the skin. Cases of black perspirations have been frequently recorded; and possibly the disease described in the preceding chapter under the name of *stearrhœa nigricans*, may by some be taken as an example of this affection. Blue perspirations have also been noticed, and have been regarded as resulting from the presence in the perspiratory secretion of prussian blue. Green perspiration was seen in the case of a young lady who had accidentally taken copper with her food; and yellow perspiration, possibly deriving its pigment from the biliary secretion, has also been noted.

The treatment of these cases must be similar in principle to that already indicated for osmidrosis.

HÆMIDROSIS, the ephidrosis cruenta of Mason Good, the bloody sweat of the ancient writers, is not without numerous examples. The colour of the secretion is evidently derived from the blood, and in some instances the blood corpuscles themselves have found their way through the skin. We have seen several examples of effusions of blood from the unbroken skin, vicarious with amenorrhœa, in hysterical young women;

and once we saw an infant bleed to death by the palms of the hands and fingers, without any existing abrasion of surface. Instances are also recorded in which the blood has suddenly welled through the skin under the influence of intense moral affections.

The treatment of hæmidrosis must be regulated by the nature of the cause. Deranged menstruation or hysteria will demand a specific method of management, so also will the hæmorrhagic diathesis, if the bleedings be regarded as having relation to such a cause.

CHAPTER XXIV.

TRAUMATIC AFFECTIONS.

TRAUMATIC AFFECTIONS of the skin are such as result from the presence of parasitic animals, *upon, in, and under* the skin, and the effects of excessive heat and cold. The parasitic animals which attack the human skin are the pediculus, pulex, cimex, acarus, and filaria medinensis. The pediculus, pulex, and cimex confine their predatory invasions to the surface of the cuticle; the acarus burrows within the cuticle, and there obtains its food and deposits its ova; but the filaria goes deeper, and occupies the subcutaneous tissues.

The evil or disease caused by the presence of parasitic animals on the skin has been termed *malis* and *maliasmus*; and that occasioned by heat and cold, *ambustio* and *gelatio*; these, therefore, are the three disorders which we include under the head of traumatic affections.

MALIS VEL MALIASMUS.

MALIS is divided into varieties, according to the kind of parasite which infests the cutaneous surface of the skin; for example, *malis pediculi*, *malis pulicis*, *malis cimicis*, *malis acaris*, and *malis filariae*.

MALIS PEDICULI, also named *morbus pedicularis* and *phthei-riasis*, is the disorder resulting from the presence of the pediculus on the skin; and the pediculus is of three kinds: *pediculus capitis*, *pediculus corporis*, and *pediculus pubis*.

The *pediculus capitis* is found on the scalp, and chiefly in children, or in weakly persons at any period of life, but is not inconsistent with a state of health. The creature seems to feed on the exuviae of the follicles, and probably pierces the cuticle to reach the juices of the skin, but evidently prefers the humours of children and weakly persons to those of adults or of the healthy, leading to the inference that a morbid state of the system is that which is most acceptable to its tastes. It multiplies rapidly, its

increase in numbers being favoured by rest, or rather by neglect; and it agglutinates its ova, popularly termed *nits*, upon the hair, in great quantity. Its presence and movements on the skin excite tickling and itching, and the action of the nails employed to relieve these sensations is apt to cause abrasion and exudation, and favour the conditions that promote the increase of numbers of the parasite.

As the pediculus is very prolific, and as its multiplication is favoured by neglect, by the accumulation of sordes among the roots of the hair, and by a morbid state of the scalp, it is more than probable that the insects, in search of food, burrow into any hollows or vacuities that may occur on the surface of the skin. Hence they are occasionally found accumulated in the open sacs of encysted tumours; and such an occurrence has doubtless suggested the idea that they sometimes breed in the skin, and have been found in small tumours of the skin when they have been opened. This, however, is an error against physiology, for, as air-breathers, they are incapable of existence under the skin, and when they have been found in encysted tumours, must have reached that situation through an external opening.

The *pediculus corporis* is larger than the *pediculus capitis*; it is also whiter, flatter, and longer; and it deposits its ova in agglomerated masses among the clothes of the person. It is rarely found amongst the hair, like the *pediculus capitis*, and prefers the smooth parts of the body, to which it adheres firmly. Like other kinds of pediculi, it multiplies rapidly, and its increase is favoured by neglect of cleanliness and by an unhealthy and acescent state of the secretions of the skin. It is met with not uncommonly in prisons and work-houses, and occasionally on persons who are very particular in their habits of cleanliness.

In the latter case it is that the infiction deserves the title of a disease, and the designation by a particular name, such as phthei-riasis. We are occasionally consulted in this matter, and the conviction is forced upon us that certain persons are especially susceptible of this disorder. In some instances we have been able to trace it to a cause of contagion, but in other instances have failed in discovering any other explanation than that of a tendency on the part of the sufferer. A married lady at present under our care has several times been the subject of this complaint, in spite of every precaution that she could adopt: she

has been careful in associations; careful as to the change of clothing; careful in her ablutions; and has even changed her residence; but is everywhere followed by the same disagreeable affection.

The *pediculus pubis* is almost square in shape, flat, and of a reddish-brown colour; it has enormous legs, enlarging towards the extremity, like the claw of a lobster or crab; and from a supposed resemblance to the latter, has been named the crab-louse; it is also termed, from its flatness, *plactula*, *petala*, and *pessolata*, while others of its synonyms are, *morpio*, and, from the teasing itching which it occasions, *pediculus ferox*. It adheres to the hair by means of its strong claws with great tenacity, and lies so flat against the skin as to seem almost buried in its surface. Its chief habitat is the *mons veneris*; but it is also met with on all the hairy parts of the body, with the exception of the scalp; as in the *axillæ*, in the eyebrows and beard, and at the roots of the cilia along the edges of the eyelids. It agglutinates its ova to the shaft of the hair like the *pediculus capitis*.

The *pediculus pubis* gives rise to great irritation of the parts which it infests, and when the insects are abundant, the irritation is communicated to the greater part of the surface of the body, producing, in fact, a pruriginous lichen. And the lichenous eruption is more or less complicated, like prurigo, with abrasions, and scratches caused by the nails.

TREATMENT.—The best destroyers of pediculi are the mercurial ointments, and the most convenient for the purpose, because the cleanest, the *unguentum hydrargyri ammonio-chloridi*; to which should be added some powerful perfume, such as essential oil of almonds, lavender, bergamotte, *origanum*, or camphor. For the head, the red precipitate ointment may be chosen, as being most easily disguised in colour; glycerole with the bichloride of mercury, five to ten grains to the ounce, is another excellent remedy; and for the destruction of nits, a lotion of spirit of wine or spirit of rosemary, containing two grains of the bichloride of mercury to the ounce. Certain simples also have retained a reputation for destroying the insect; for example, *staphisagria*, the lesser *centaurea*, and the powdered seeds of parsley and wormwood.

MALIS PULICIS.—Two kinds of flea are known to attack the human skin, the common flea, or *pulex irritans*, and the *pulex*

penetrans, also called chigoe or chiggre, a flea met with in South America and the West Indies. The former is annoying from its habit of piercing the skin to reach the blood, which it draws up for its food; the latter for penetrating the cuticle to deposit its ova.

The punctures of the common flea are made by means of a double lancet attached to its head, and they are deserving of notice as having given the name petechiæ to the spots of purpura, and also as being liable to be confused with purpura. The petechiæ of the flea are small circular red spots, with a central punctum of a deeper red colour, indicating the seat of puncture of the lancet; while the petechiæ of purpura, although of the same figure and size, are more deeply coloured, and purple or livid in hue. If the petechia of the flea be pressed by the finger, the redness of the disk disappears, and the puncture remains evident; but if the petechia of purpura be submitted to pressure in a similar manner, no alteration of colour takes place. Sometimes, as in cachectic children, the petechiæ produced by the flea may be purple, but the test of pressure is generally sufficient to determine the diagnosis. It may be remembered also that purpura is a constitutional affection, and that the petechiæ are therefore pretty uniformly disseminated in the skin; whereas the punctures of the flea are irregular, and without uniformity.

Strong perfumes and grease are repugnant to the flea, and may therefore be made a protection against its attacks; and in like manner, fragrant herbs are the best means of keeping it away from the clothing and bed-coverings. As a pulicifuge or flea-bane, Linnæus recommends the seeds of the *absinthium maritimum*; while lavender, musk, and thyme have a similar power.

The *pulex penetrans* burrows into the skin of the wall of the nail of the toes, and into the thick cuticle of the heel. After awhile, a small tumour, as large as a lentil, is observed on the spot, the skin around inflames, a purulent discharge takes place, and is followed by a troublesome ulcer. When the tumour breaks, it is seen to be filled with small white oblong ova; the ova hatch in the midst of the discharges of the ulcer, and keep up further irritation, until a serious state of inflammation is established, sometimes running on to deep ulceration, necrosis of bone, and occasionally to mortification and death.

It is important, in removing the ovisac of the chiggre, to avoid

breaking it and leaving any of the ova behind. This is an operation in which the negroes show great dexterity, and prove themselves good surgeons; they dislodge the sac very adroitly with the aid of a pin or needle, and dress the wound with tobacco juice.

MALIS CIMICIS.—The *cimex lectuarius*, or *lectularius*, is interesting to us chiefly on account of the inflamed blotches and bumps to which its puncture gives rise. The animal needs no description; it has its habitat in sleeping apartments, in the joints of the bed, in folds of the bedding, in cracks of the ceiling and walls, under the paper of walls, and in the seams of the boards; it lies hidden by day, but comes out on marauding excursions at night; and besides the suffering and irritation which it occasions when it attacks its victim, it gives out a most detestable cinnamon-like odour when pressed upon or destroyed.

The bumps caused by the puncture of the *cimex* resemble erythema tuberosum or nodosum, the amount of swelling varying in degree according to the sensitiveness of constitution of the patient. They are commonly white in the middle, more or less red in the circumference, and marked in the centre by the deeper red of the puncture. Sometimes they are mere blotches without elevation, and sometimes they are very considerably swollen and oedematous, and might be mistaken for erythema nodosum, or, occurring in the neighbourhood of the eyelids, might raise the suspicion of an incipient erysipelas.

The best remedies for the treatment of the erythematous blotches caused by the *cimex* are: Goulard's lotion, a lotion of bitter almonds with spirits of wine, vinegar, the liquor ammoniæ acetatis, a lotion of one part of spiritus ammoniæ compositus to three of water, or a lotion of the tincture of arnica of a similar strength.

MALIS ACARI.—The acari which attack the human body are two in number, the *acarus scabiei*, or *sarcoptes hominis*, and the *acarus autumnalis*. They are widely different in their conformation, their habits, and their mode of operation on the skin. The *acarus scabiei* burrows in the epidermis, takes up his abode in that structure, and dies when removed from the skin. The *acarus autumnalis* is a minute spider that comes from the earth, makes its attack in the autumn season, is predatory in its habits, and temporary in its sojourn on the skin. The *acarus scabiei*

is a domestic companion, the *acarus autumnalis* an intrusive blood-sucker.

It happens, perhaps happily, that England is not the paradise of the *acarus*; scabies is rare, and very partial in its distribution on the skin, commonly limited to a few solitary regions. Hence our acquaintance with the *acarus* is not so familiar as that which happens in other nations. For many years the itch was almost unknown to us in the middle class of life; but latterly, since the sounds of war have been heard upon the earth, and since man has congregated in unwashed masses for the destruction of his fellow-man, scabies has come amongst us almost as a familiar companion, and has recognized no distinction of class. We had always contended that, in this country at least, the *acarus* was seen only in the hands, and we have repeated that conviction in the third chapter of this book; but we have now to say that, since that chapter was published, we have found the *acarus* in the skin bordering the axilla in one case, and on the prepuce in another, and in both instances the creature was absent in the hands.

For what relates to the destruction of the *acarus* we refer the student to the article Scabies in the chapter in question; and we have only to observe, in addition, that we have hardly done justice to the solution of the penta-sulphide of calcium as a valuable and convenient remedy.

The *acarus autumnalis*, or harvest bug, is a minute red spider, scarcely larger than the *acarus scabiei*, furnished with powerful hooks, by which it is enabled to hold on to the smooth surface of the skin. As its name implies, it is a scourge of the autumn season, and besides the harvest-field, is met with abundantly on a dry chalky soil. It first appears on the legs, and thence spreads more or less extensively to the rest of the body. It is probably provided with a haustellum and lancets with which to puncture the skin and draw the blood; and it gives rise to red blotches, sometimes small and sometimes large, and marked in the centre by a red spot, which is the insect itself firmly fixed to the skin; or, if the insect have been destroyed, the puncture made by its lancet. The bite of the creature causes troublesome and sometimes intense itching, and the blotch is often pale in the centre, and raised like a wheal of urticaria: hence one of the synonyms of the animal; namely, wheal-worm.

The best remedies for the destruction of the *acarus autumnalis* and the relief of the itching are, spirits of wine, either alone or with the addition of camphor, a lotion of the bicarbonate of ammonia, one drachm to eight ounces of elder-flower water, a lotion of equal parts of spiritus ammoniæ compositus and water, distilled vinegar, the liquor ammoniæ acetatis, emulsion of bitter almonds with the bichloride of mercury two grains to the ounce, the elder-flower ointment, or a cerate of camphor.

MALIS FILARIS.—The *filaria medinensis*, or Guinea-worm, is a pest of tropical climates, and is sometimes imported into England from our Indian possessions. It is a worm of about the dimensions of a crow-quill, and many feet in length, that makes its nest in the subcutaneous tissues, generally of the feet and lower limbs. It remains in the skin, often for many months, without inconvenience; but sooner or later gives rise to inflammation, suppuration, and ulceration, and often to very severe pain. Occasionally it has produced so much local mischief, attended with irritative fever, as to threaten the life of the patient.

When suppuration and ulceration take place, the worm is brought into view, and the endeavour must be made to extract it. This is effected by winding it upon a piece of card from day to day, until the whole worm is obtained. It is impossible to complete the operation at once, on account of the resistance of the creature, which would endanger its rupture; but with care, and by degrees, it may be drawn out entire; and this is not an unnecessary precaution, for if a portion remain behind, it will continue to live and grow.

AMBUSTIO, OR BURN.

BURNS AND SCALDS are the consequence of excessive heat applied to the skin; in the one instance irradiated from heated bodies, or proceeding from the direct action of flame; in the other, derived from the contact of boiling fluids or melted metals. The effects of heat will be modified by various conditions, such as intensity and duration on the one hand, and the resisting power of vitality on the other. A weak and sensitive skin may be burned by the sun's rays, while a vigorous skin will be only agreeably stimulated by the same amount of caloric.

In reference to *degree*, burns and scalds have been divided into three groups, as follows:—

Ambustio erythematosa,
 " vesicularis,
 " gangrenosa.

AMBUSTIO ERYTHEMATOSA, or erythematous burn, marks the slightest degree of injury done to the skin by heat; the skin is red, the redness being more or less vivid and diffused; there is some degree of swelling and a pungent smarting pain. The pain continues for several hours; the redness subsides after an interval of hours or days, according to the violence of the burn, and is followed by desquamation of the cuticle.

The common causes of erythematous burn are insolation, or the action of the sun's rays, the prolonged heat of fire, or the momentary action of hot water or steam. Sunburn, or *ephēlis solaris*, is not infrequent in the summer season, from unwonted exposure to the heat of the sun, and, besides erythema and desquamation, is sometimes accompanied with an increase of the black pigment of the skin and the production of a *melasma* which is more or less permanent. Another example of this form of melasmic burn is met with on the legs of women in countries where the *chaufrette* is used for warming the feet; and it may be produced on any part of the skin much exposed to the action of heat, light, and air, either separately or in combination.

AMBUSTIO VESICULARIS, or vesicated burn, is a superaddition of vesicles or bullæ, to the erythematous congestion of the skin, and indicates a severer degree of injury. The vesicles appear, sometimes immediately, more frequently at the end of a few hours; they vary in size, and are distended with a pale-yellow and transparent serum. Occasionally a portion of the cuticle is removed at the time of the burn, in which case the local action is more severe, and results in suppuration. The pain is smarting and intense; there is more or less swelling, and, if the epidermis have been removed, the surface becomes quickly covered with a glutinous layer of transparent lymph. When the pain and swelling have subsided, the future progress of the cure will be influenced by the degree of preservation of the cuticle. If this remain, it forms a natural dressing and protection to the

inflamed part; if it be removed, there must follow suppuration in a greater or less degree, probably superficial ulceration and a subsequent cicatrix.

AMBUSTIO GANGRÆNOSA, or gangrenous burn, is an advanced degree of severity of the injury, and indicates a loss of vitality of part of the derma, either the pars papillaris only, or the whole thickness of the corium. The dead portion of the skin is indicated by greyish-white, yellowish, or brownish patches, or, if the burn have extended more deeply, by a dark grey or black surface, surrounded very frequently by an area presenting the vesicular and the erythematous forms of the injury. The vesicles raised upon the dead portion of the skin are filled with a lactescent or brown and sanguineous serum; the pain is very severe, and lasts commonly for one or two days, and is followed by inflammation and suppuration, for the removal of the dead portions and the restoration of the skin. This form of burn is succeeded by a cicatrix of greater or less depth, and by contraction of the surrounding skin, which produces a certain degree of deformity.

The *constitutional* effects of burns and scalds are, a certain amount of shock to the nervous system, followed by irritative fever and congestion of the organs of the abdomen, thorax, or cranium. The shock is often greatly disproportioned to the injury; the latter may be trivial, the former grave, showing that not the injury alone, but the constitutional susceptibility of the patient is concerned. In slight cases of erythematous burn, there may be no constitutional symptoms; but burns even of moderate extent create a feeling of anxiety on account of the severe reaction which is apt to follow in their train. In one case we may have extreme prostration of muscular power; stupor; cold surface and extremities; quick small pulse, and slow respiration, a state of collapse; in another there may be agitation, excitement, restlessness, sleeplessness, convulsions, and high fever.

According to Dupuytren, there are four periods of danger in the course of a burn; namely, those of irritation, inflammation, suppuration, and exhaustion. After the irritative period is past, inflammation is set up as a reparative process, to remove the dead parts and restore the skin to health; reparative inflammation is accompanied with suppuration, and the suppuration may be

wasting and exhaustive. The inflammation is sometimes so severe as to constitute a state of general fever: there may be a frequent and full pulse, dry and parched skin, dry and red tongue, thirst, nausea, vomiting, and symptoms of gastro-intestinal, pulmonary, or cerebral congestion. The suppurative period may be accompanied with pyæmia, and aggravate the internal mischief already established by the preceding inflammation, while the powers of the patient may give way entirely under these congestions, and the exhaustive discharges which are apt to ensue. Lastly, erysipelas, either in its cutaneous or in its phlegmonous form, may be set up at any period of the progress of the case.

TREATMENT.—The indication for treatment in burns and scalds is, in the first place, to relieve pain and the effects of the shock to the nervous system, and, secondly, to provide a proper dressing for the injured part. The first indication calls for a sedative and stimulant; for example, liquor opii sedativus, fifteen minims; chloric ether, ten minims; brandy, two to four drachms; and this draught may be repeated in one or two hours if the prostration continue. In the absence of the sedative solution of opium, we may have recourse to the tincture of opium, half a drachm, or the compound tincture of camphor, two drachms; and if no medicines are at hand, then we must rely on brandy alone. The doses here indicated are intended for an adult; in children they must of a necessity be smaller.

Locally, the best application that can be used is whiting and water, mixed to the consistence of a thick paste, and painted over the whole surface. This should be applied immediately, as it not only cools the surface and relieves the pain, but also forms a covering preparatory to the future dressings. If whiting and water are not at hand, flour may be used instead, applied thickly by means of the flour-dredger. Outside this application should be placed a sheet of cotton wool, and then a bandage to keep the cotton in its place.

The chalk dressing is applicable to every form and degree of burn or scald, when the cuticle is gone as well as when it remains. If the cuticle be raised in blisters, they should be pricked with a needle and allowed to collapse over the abraded surface, and every precaution should be taken to exclude the atmospheric air as much as possible.

On the same principle, namely, that of substituting a new covering to the skin for that which is lost, various other remedies are in use; for example, a mixture of albumen and oil, linseed-oil and lime-water, and oil inspissated with turpentine. These are all excellent applications, and the latter combines the stimulant properties of the turpentine with the sheathing operation of the liniment.

When properly dressed, the coverings should be disturbed as little as possible, and unless any indications to the contrary arise, the first dressing may be retained until the skin is entirely restored; when, however, there is suppuration and much discharge, and especially if the secretion be offensive, the injured part will require daily dressing with some mildly stimulating • salve, such as the unguentum resinæ or unguentum elemi; and the discharges which flow from the separating sloughs may be absorbed by dredging with powder of cinchona.

When the first shock of the injury is over, the patient will require a constitutional treatment suited to his general state of health and condition. He may need mild aperients and an antiphlogistic regimen, or tonics and a generous diet, and at a later period, to maintain the powers of the constitution, it may be necessary to administer stimulants and abundance of food.

GELATIO, OR FROSTBITE.

GELATIO comprehends every degree of injury to the skin resulting from cold, from the mildest and most common form, namely, chilblain, to absolute destruction of vitality or mortification.

Cold attacks first the surface of the body and the extremities the most remote from the centre of circulation; its primary influence is felt in the nerves; these organs are benumbed, and the effects of loss of innervation are speedily communicated to the circulation; the blood flows tardily through its vessels, and assumes the purple and livid hue of venous blood while still circulating in the part; and before long, the stream is altogether arrested and the part becomes white and shrunken. These changes may occur only in a spot of the surface of the skin of small extent, or they may involve a toe, a finger, or an entire limb.

If the temperature be suddenly raised, *reaction* takes place; in other words, the nerves recover their sensibility, the vessels their power of receiving blood; but both have been injured by the cold, and their state is no longer normal; the nerves are the seat of painful sensations, of itching, tingling, and aching; and the vessels, weakened in their coats, have lost the power of contraction and become unnaturally distended, causing redness and swelling. This is the state which is termed *chilblain*.

But it may happen that the injured part is not only chilled, but frozen and killed; the nerves have no longer the capacity to recover their sensibility, nor the vessels the power of circulating their blood. In this case the reaction is limited to the living but weakened part, and a line is drawn, the *line of demarcation*, between the living and the dead; on the one side there is redness, swelling, heat, and pain; on the other there is discoloration, contraction, coldness, and insensibility. On the living side those operations are set up which result in a dissection of the living from the dead; on the dead side the part shrivels and dries into a blackened mass, or putrefies and decays.

In the slighter forms of gelatio there may be no *constitutional symptoms*, the suffering being chiefly local; but in the severer forms there will be irritative fever to a greater or less degree, and serious prostration of vital power.

PERNIO, or CHILBLAIN, or kibe, occurs for the most part in frosty weather, in the winter season, and in children; but occasionally it is met with in adults, and sometimes in the temperate seasons of the year. In the latter case the fault lies, not so much in the cold, as in the low vitality, the want of power of the individual. The more common seat of chilblains is the toes and feet, the fingers and hands, the elbows, and the prominent parts of the face, as the nose and lobules of the ears. They also present certain degrees or varieties, which may be included under the three heads, *erythematous*, *vesiculous*, and *gangrenous*.

PERNIO ERYTHEMATOSUS is the simplest form of chilblain, in which the inconvenience arises from the efforts of the circulation to break down the barrier of congestion set up by the cold. The cold which gives rise to it may excite no inconvenience at the time, and it is not until the patient goes into a warm room or near the fire that the suffering begins. The first sensation

in coming out of the cold is aching and a feeling of fullness and weight of the part; and this sensation is followed by a teasing itching. These symptoms are most severe in the quiet of the evening and at bedtime, or when the patient is warm in bed, and the itching is often so intense as to destroy rest and sleep.

In appearance, the erythematous chilblain is swollen, of a deep red colour, often purple and livid, the red tints being most visible under the stimulus of warmth, and the purple and livid hues under the depressing influence of cold.

PERNIO VESICULOSUS, the vesicated or broken chilblain, is the common pathological consequence of the congestion constituting the erythematous form, when the congestion is forced beyond a given point, or in persons of lymphatic temperament. The congested vessels of the part relieve themselves by the excretion of the serous part of the blood into the intervascular tissues, and these, in their turn, empty the superabundant fluid upon the derma, lifting up the cuticle from its bed, and constituting a vesicle or bleb. A vesicated chilblain is therefore an erythematous chilblain, surmounted by a broad and shallow bleb or blister, containing serum more or less discoloured with blood. The deep red of the congested skin is seen in the circumference of the swelling, while the blain or blister on its summit is purple or livid, both from the nature of its contents and the condition of the corium beneath.

The symptoms of the broken chilblain are the same as those of the congested chilblain, but aggravated in degree; there is itching, tingling, throbbing, and, superadded to these, smarting, soreness, and pain; and when the blister is broken or the cuticle rubbed off, the central portion of the corium is found to be grey in colour and lifeless, and is subsequently separated as a slough of greater or less extent.

PERNIO GANGRÆNOSUS is a more severe form of chilblain, and a transition from the milder forms already described to the more aggravated kinds of frostbite attended with extensive or deep sloughing and gangrene. It arises from a more intense and prolonged degree of cold, or from the presence of a debilitated and irritable state of the system, and is accompanied with symptoms indicating a more or less serious derangement of constitution and visceral congestion.

TREATMENT.—The treatment of *gelatio* and *pernio* consists in

the restoration of innervation and circulation. This must be done gradually, lest the weakened tissues be overpowered by the too sudden influx of the circulating fluid. The parts should be stimulated by friction, at first gentle, then more active; at first in a cool apartment, and by degrees in a warmer one. In frostbite, friction should be commenced with snow or cold water; then with the hand sheathed with starch powder; subsequently with mild stimulating liniments, and afterwards with stronger ones. The object to be attained is the removal of insensibility and the stagnation of the blood. In the lesser degrees of chill and in common chilblain, this may be gained entirely, and in the severer forms much may be effected, although we may fail to accomplish all we desire.

The stimulant liniments the best adapted for the purpose; and for chilblains, are turpentine and ammonia liniments, aided by chloroform, cajeput, camphor, laudanum, and, where more stimulation is required, by the *tinctura cantharidis*, *spiritus sinapis*, compound tincture of iodine, or tincture of cayenne. We have found a liniment consisting of equal parts of spirit of turpentine, white of egg, and distilled vinegar, of great value; and this may be increased in power by the addition of any of the stimulants above named; while Dr. Balfour, of the Military Hospital at Chelsea, directs the unbroken chilblains to be painted twice daily with a solution consisting of equal parts of compound tincture of iodine and *liquor ammoniæ*.

The best dressing for the broken and sloughing chilblain is the *unguentum resinæ* or *unguentum elemi*; or *unguentum resinæ* and *spiritus terebinthinæ*, of each equal parts, used by Dr. Balfour.

The gangrenous chilblain and frostbite must be treated in the manner prescribed for gangrene and mortification; no better local remedies can be found than those ordered for broken chilblain, while the vesicated borders of the line of separation of the gangrenous part may be dusted with the powder of cinchona.

APPENDIX.

HEBRA'S CLASSIFICATION OF CUTANEOUS DISEASES.

- | | |
|--|-----------------------------------|
| 1. Hyperæmiæ, | 7. Atrophie, |
| 2. Anæmiæ, | 8. Neoplasmata (homœoplasia), |
| 3. Anomalie secretionum et organorum secernentium cutis. | 9. Pseudoplasmata (heteroplasia), |
| 4. Exsudationes, | 10. Ulcerationes, |
| 5. Hæmorrhagiæ, | 11. Neuroses, |
| 6. Hypertrophie, | 12. Parasitæ. |
-

I. HYPERÆMIÆ.

A. ACTIVE.

1. *Idiopathic.*

- a. Erythema traumaticum,
- b. " caloricum,
- c. " ab acribus seu venenatum.

2. *Symptomatic.*

- a. Erythema seu roseola infantilis,
- b. " " variolosa,
- c. " " vaccina.

B. PASSIVE.

1. *Idiopathic.*

- a. Livedo mechanica,
- b. " calorica.

2. *Symptomatic.*

- a. Cyanosis.

II. ANÆMIÆ.

1. Anæmia ex jacturâ sanguinis.

a. a. ex hæmorrhagibus,

b. a. e morbis prægressis.

2. Anæmia ex inervatione anomala.

III. ANOMALIÆ SECRETIONUM ET ORGANORUM
SECERNENTIUM CUTIS.A. *Sebaceous secretion.*

1. Excess of secretion, stearrhœa seu seborrhœa.

a. general: s. congestiva et simplex,

b. local: s. capillitii, faciei, organorum genitalium
externorum.

2. *Diminished secretion.*

a. local: asperitudo epidermidis seu pityriasis simplex localis, psoriasis lotricum (washer-women).

b. general: as in prurigo, ichthyosis, lichen ruber, marasmus senilis.

3. Faulty secretion and detention of secretion.

a. comedo,

b. milium seu grutum,

c. molluscum contagiosum.

B. *Sudatory secretion.*

1. Anomalies of quantity.

a. Ephidrosis seu hyperidrosis generalis,

b. " " " localis.

c. anidrosis.

2. Anomalies of quality.

a. odor hircinus,

c. galactidrosis,

b. uridrosis,

d. menidrosis.

IV. EXUDATA.

A. ACUTE.

1. Contagious.

- | | |
|---------------------------------|---------------------|
| <i>a.</i> Morbilli seu rubeola, | <i>c.</i> Variola, |
| <i>b.</i> Scarlatina, | <i>d.</i> Vaccinia. |

2. Non-contagious.

a. Erythemata polymorpha (multiformia).*α.* Erythema exudativum multiforme.

- e.* multiforme (papulatum, tuberculatum, iris, annulare, marginatum),
- e.* nodosum,
- e.* pellagra,
- e.* epidemicum seu acrodynia.

β. Roseola.*γ.* Urticaria.*δ.* Dermatitides.*α.* Dermatitis idiopathica.

- | | | |
|----------------------|------------------|----------------|
| <i>d.</i> traumatica | } erythematosae, | |
| <i>d.</i> venenata | | phlegmonosa, |
| <i>d.</i> calorica | | circumscripta, |
| | | diffusa. |

β. Dermatitis symptomata.

- | | | |
|---|----------------|----------------|
| Erysipelas seu <i>d.</i> erythematosae, | | |
| Furunculus, an- | } phlegmonosa, | |
| thrax, | | circumscripta, |
| Pseudo-erysipelas, | | diffusa, |
| glanders or farcy, | | |
| pustula maligna. | | |

c. Phlyctænosen.

- | | |
|-----------|--------------------------------|
| Herpes, | Sudamina, |
| Miliaria, | Pemphigus acutus seu febrilis. |

B. CHRONIC.

1st group : Dermatoses squamosæ.

- a.* Psoriasis seu lepra Willani.
- b.* Lichen exsudativus.
 - l. ruber,
 - l. scrofulosorum.
- c.* Pityriasis rubra.

2d group : Dermatoses pruriginosæ.

- a.* Eczema.
 - e. squamosum = pityriasis rubra,
 - e. papulosum seu lichenodes,
 - e. vesiculosum = solare Willani,
 - e. rubrum seu madidans,
 - e. impetiginosum seu crustosum.
- b.* Scabies.
- c.* Prurigo.

3d group : Dermatoses acneformæ.

- a.* Acne vulgaris seu disseminata,
- b.* Sycosis seu acne mentagra,
- c.* Acne rosacea.

4th group : Dermatoses pustulosæ.

- a.* Impetigo,
- b.* Ecthyma.

5th group :

- a.* Pemphigus chronicus.

V. HÆMORRHAGLÆ.

Purpura.

- p. idiopathica,
- p. symptomatica.

. VI. HYPERTROPHIÆ.

A. *Epidermis.*

1. Without hypertrophy of papillæ.

- a. Lichen pilaris,
- b. Tyloma,
- c. Clavus.

2. With hypertrophy of papillæ.

- a. Pityriasis simplex,
- b. Ichthyosis,
- c. Verrucæ,
- d. Nævus verrucosus.

B. *Pigment.*

Lentigo,
Chloasma,
Melasma,
Nævus spilus,
Pityriasis versicolor et
nigra.

C. *Corium.*

Elephantiasis Arabum.

D. *Follicles.*

Sebaceous follicles,
Hair follicles.

E. *Appendages.*

Excess of hair,
Cornu cutaneum,
Supernumerary nails,
Thickening of nails.

VII. ATROPHIÆ.

A. Epidermis: excoriations, rhagades.

B. Pigment: leucopathia.

C. Cutis: cicatrices of favus, etc.

D. Follicles.

E. Appendages: hair, colour of hair, nails.

VIII. NEOPLASMATA.

A. Epidermis: condyloma.

B. Areolar tissue: molluscum simplex,
acne rosacea,
lupus.

C. Fibrous tissue: cicatrices, keloid, callus.

D. Fatty tissue.

- I. *Scabies*
- II. *Impetigo*
- III. *Erysipelas*
- IV. *Cellulitis*

V. *Pyoderma*

- Impetigo*
- Erysipelas*

VI. *Ulceration*

- Impetigo*
- Erysipelas*

VII. *Variolae*

- A. *Impetigo*
- B. *Erysipelas*
- C. *Erysipelas*
- D. *Erysipelas*

- E. *Erysipelas*
- F. *Erysipelas*
- G. *Erysipelas*

- H. *Erysipelas*
- I. *Erysipelas*

VIII. *Parasitae*

- A. *Parasitae*
- B. *Parasitae*
- C. *Parasitae*
- D. *Parasitae*

- E. *Parasitae*
- F. *Parasitae*
- G. *Parasitae*
- H. *Parasitae*

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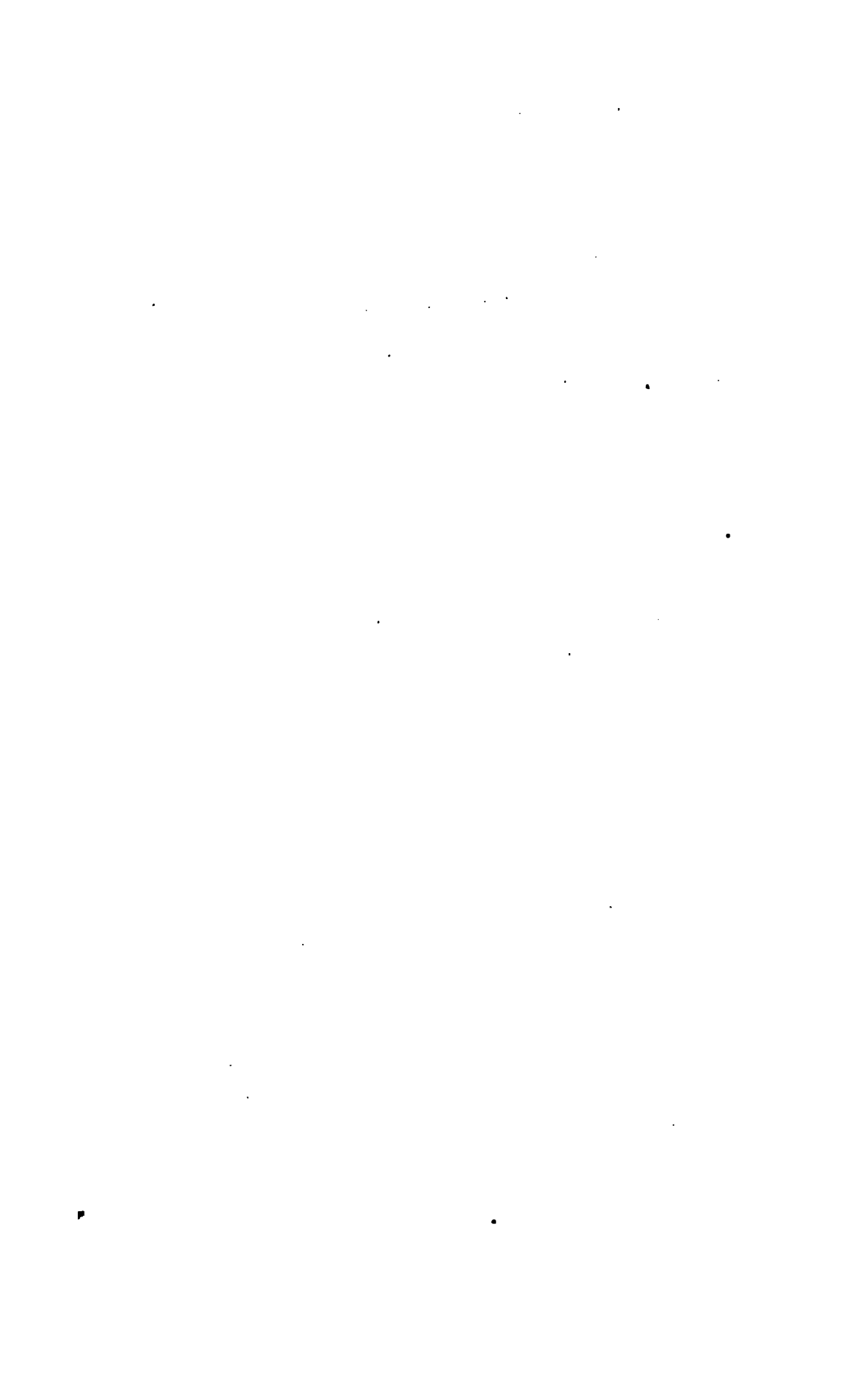
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